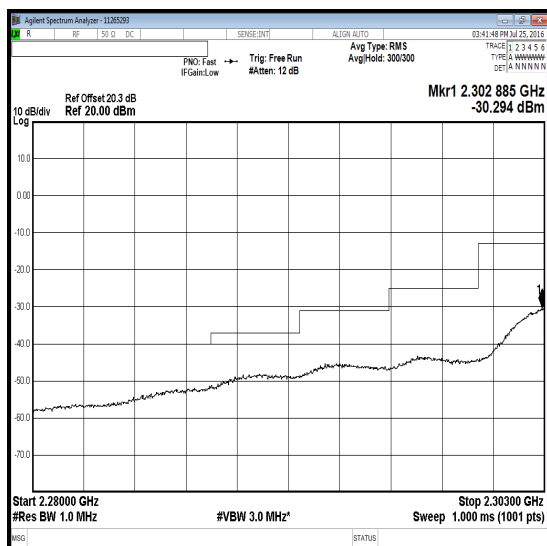
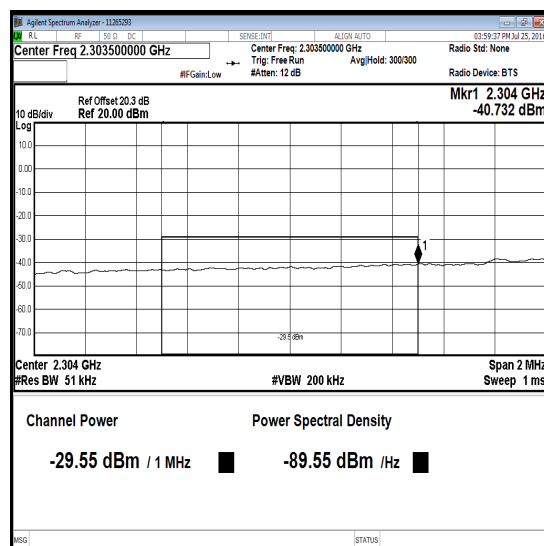
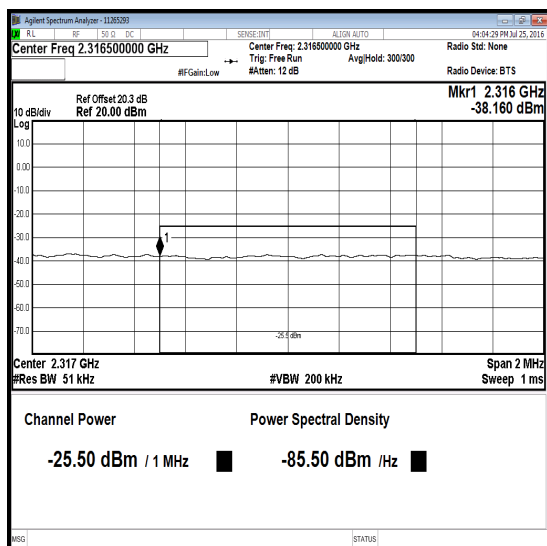
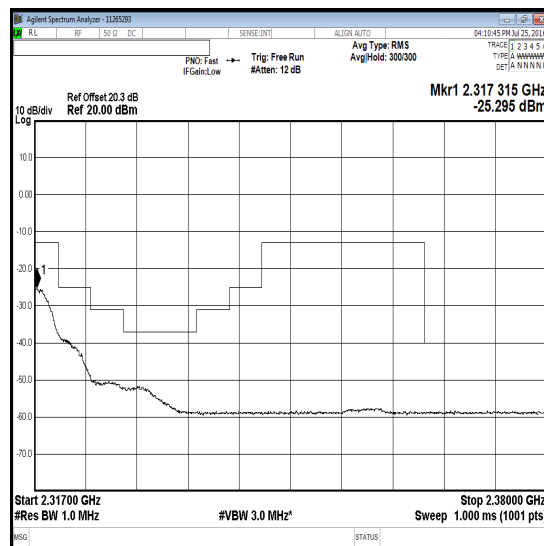


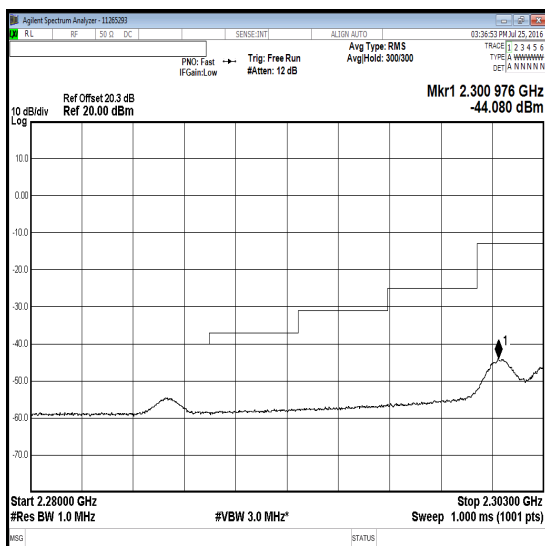
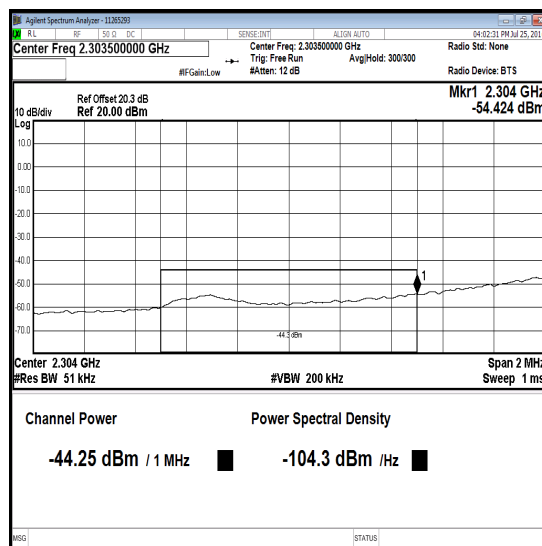
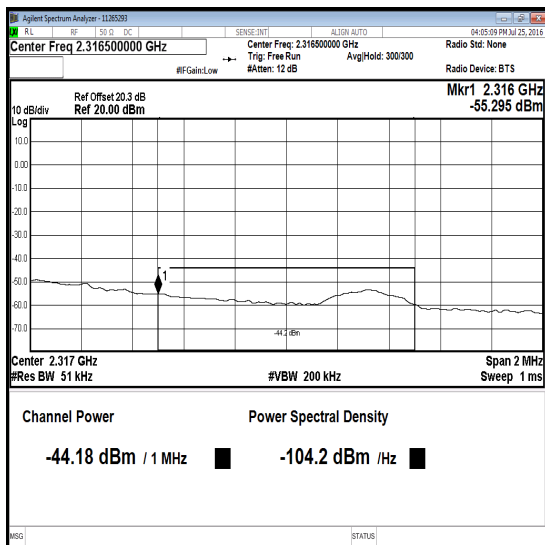
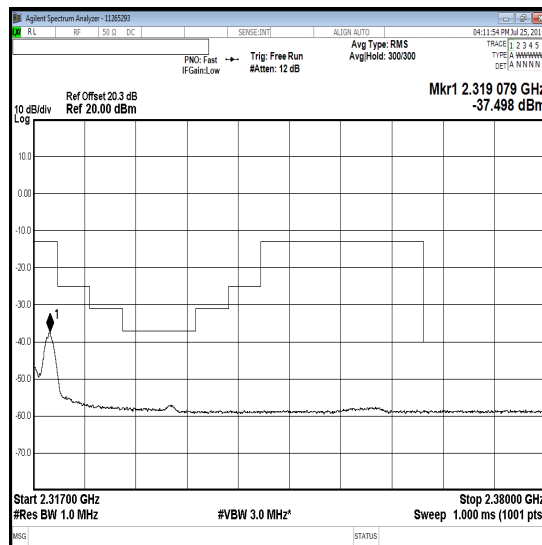
Transmitter Conducted Emission Mask – LAT (continued)**Results: 5 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2302.885	25	0	-30.3	-13.0	17.3	Complied
2303 to 2304	25	0	-29.5*	-13.0	16.5	Complied
2316 to 2317	25	0	-25.5*	-13.0	12.5	Complied
2317.315	25	0	-25.3	-13.0	12.3	Complied

**QPSK / 25 RB 0 Offset / 2280 to 2303 MHz****QPSK / 25 RB 0 Offset / 2303 to 2304 MHz / Integrated level****QPSK / 25 RB 0 Offset / 2316 to 2317 MHz / Integrated level****QPSK / 25 RB 0 Offset / 2317 to 2380 MHz**

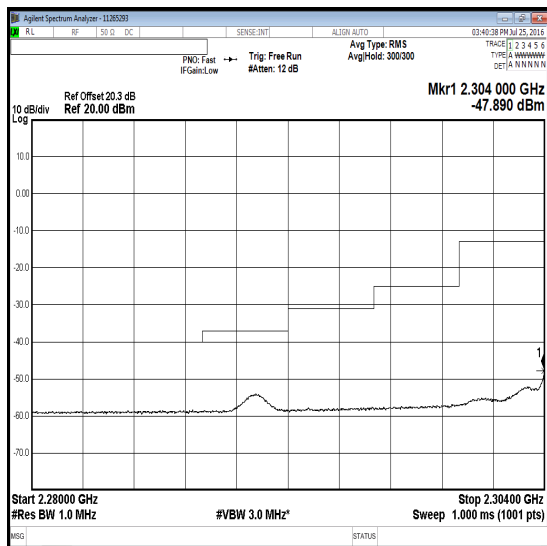
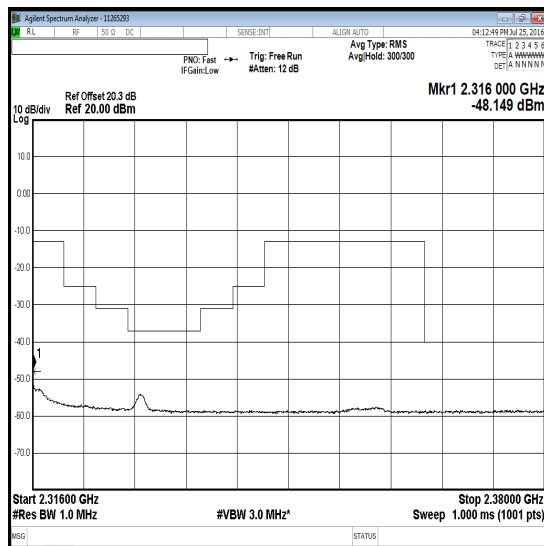
Transmitter Conducted Emission Mask – LAT (continued)**Results: 5 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2300.976	1	0	-44.1	-13.0	31.1	Complied
2303 to 2304	1	0	-44.2*	-13.0	31.2	Complied
2316 to 2317	1	24	-44.2*	-13.0	31.2	Complied
2319.079	1	24	-37.5	-13.0	24.5	Complied

**QPSK / 1 RB 0 Offset / 2280 to 2303 MHz****QPSK / 1 RB 0 Offset / 2303 to 2304 MHz / Integrated level****QPSK / 1 RB 24 Offset / 2316 to 2317 MHz / Integrated level****QPSK / 1 RB 24 Offset / 2317 to 2380 MHz**

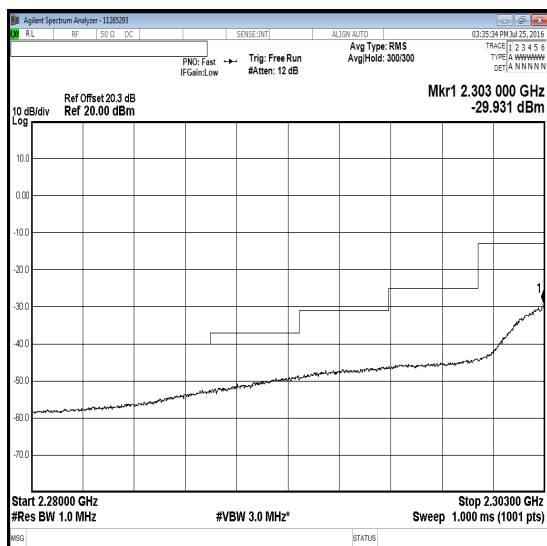
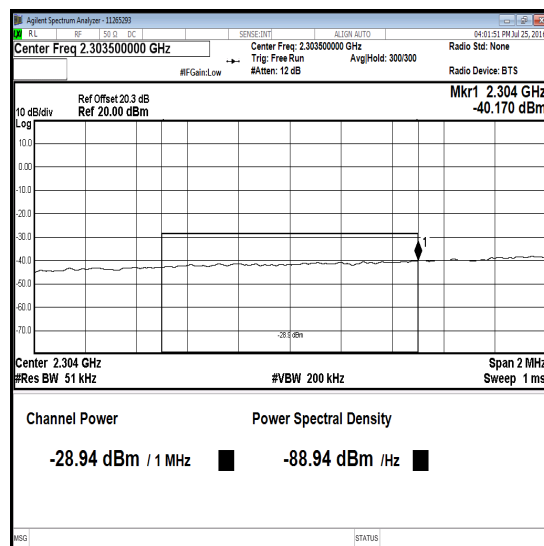
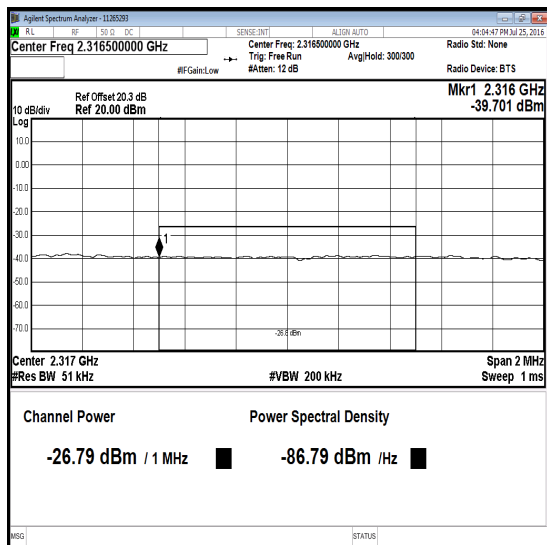
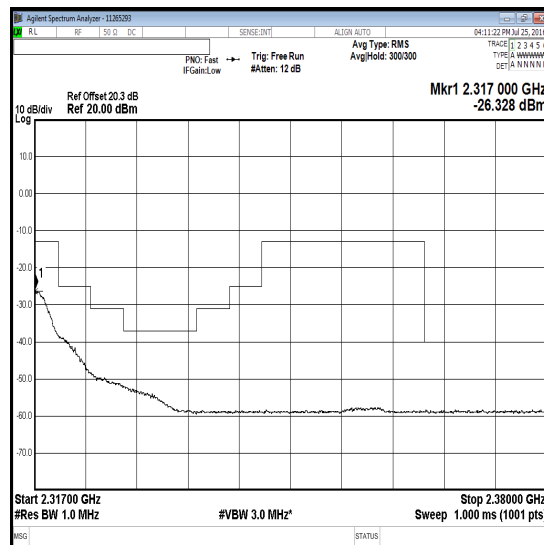
Transmitter Conducted Emission Mask – LAT (continued)**Results: 5 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2304	1	24	-47.9	-13.0	34.9	Complied
2316	1	0	-48.1	-13.0	35.1	Complied

**QPSK / 1 RB 24 Offset / 2280 to 2304 MHz****QPSK / 1 RB 0 Offset / 2316 to 2380 MHz**

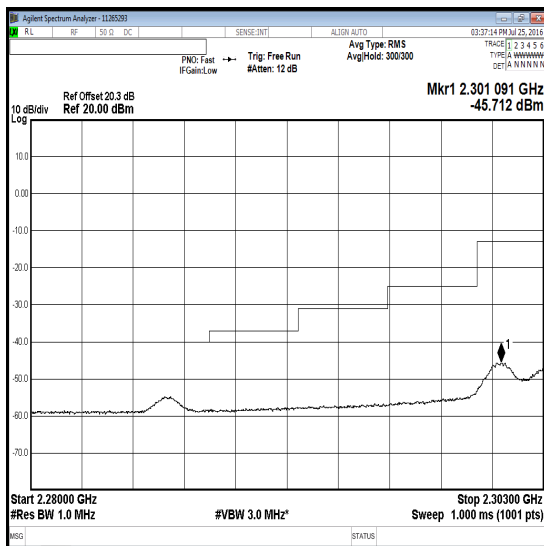
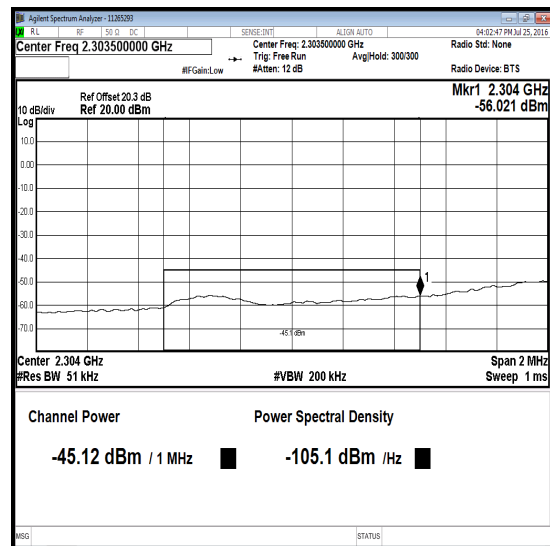
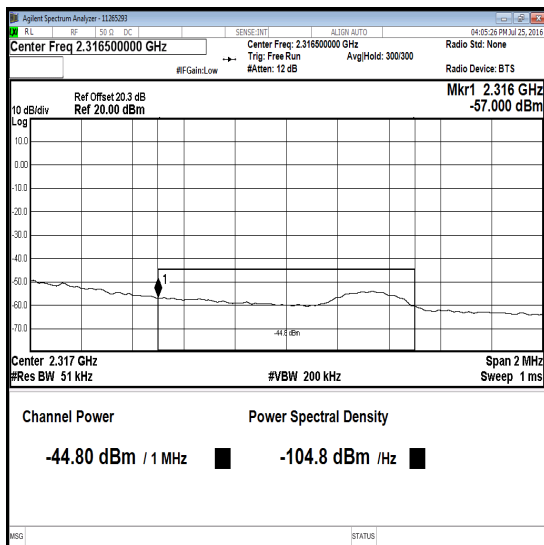
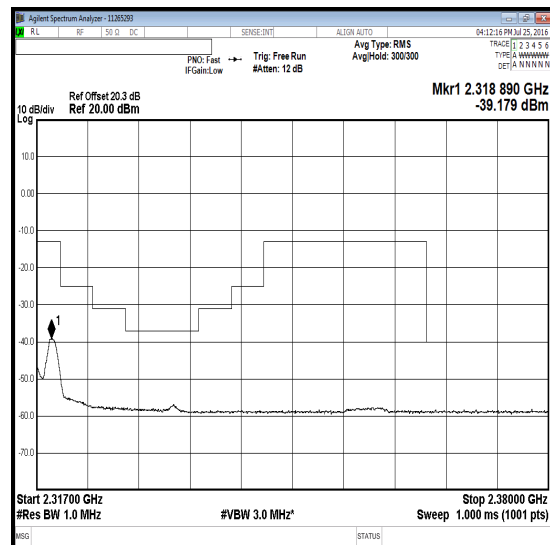
Transmitter Conducted Emission Mask – LAT (continued)**Results: 5 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / 16QAM**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2303	25	0	-29.9	-13.0	16.9	Complied
2303 to 2304	25	0	-28.9*	-13.0	15.9	Complied
2316 to 2317	25	0	-26.8*	-13.0	13.8	Complied
2317	25	0	-26.3	-13.0	13.3	Complied

**16QAM / 25 RB 0 Offset / 2280 to 2303 MHz****16QAM / 25 RB 0 Offset / 2303 to 2304 MHz / Integrated level****16QAM / 25 RB 0 Offset / 2316 to 2317 MHz / Integrated level****16QAM / 25 RB 0 Offset / 2317 to 2380 MHz**

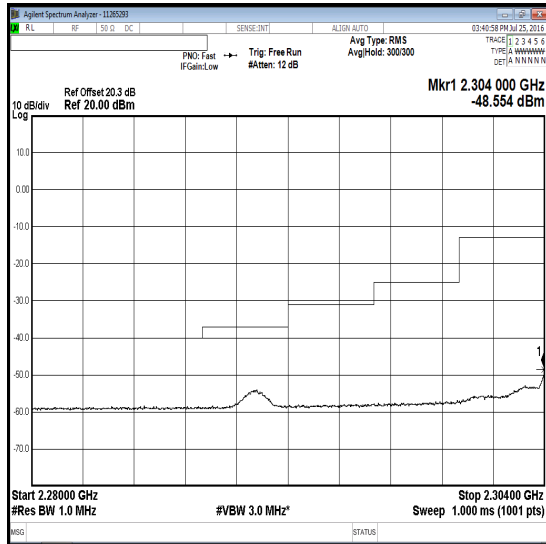
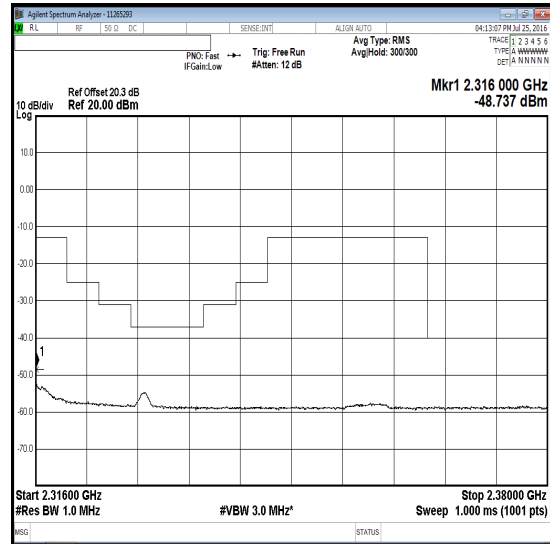
Transmitter Conducted Emission Mask – LAT (continued)**Results: 5 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / 16QAM**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2301.091	1	0	-45.7	-13.0	32.7	Complied
2303 to 2304	1	0	-45.1 *	-13.0	32.1	Complied
2316 to 2317	1	24	-44.8*	-13.0	31.8	Complied
2318.890	1	24	-39.2	-13.0	26.2	Complied

**16QAM / 1 RB 0 Offset / 2280 to 2303 MHz****16QAM / 1 RB 0 Offset / 2303 to 2304 MHz / Integrated level****16QAM / 1 RB 24 Offset / 2316 to 2317 MHz / Integrated level****16QAM / 1 RB 24 Offset / 2317 to 2380 MHz**

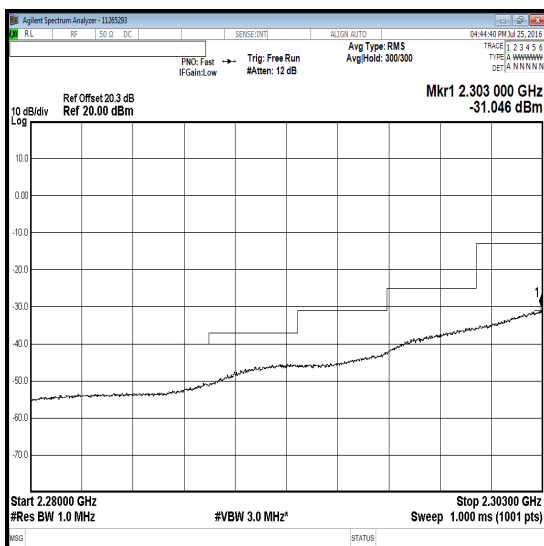
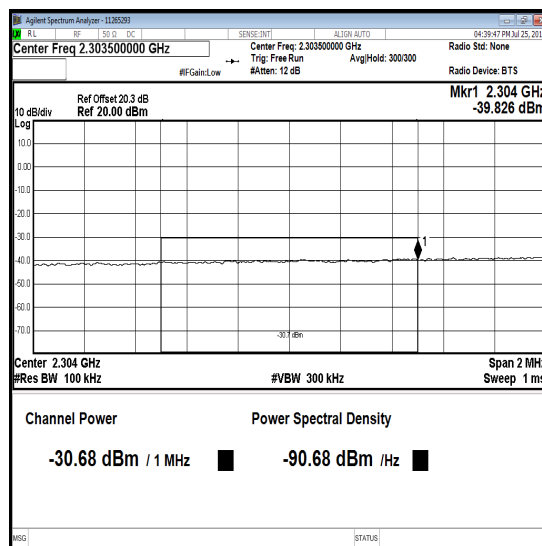
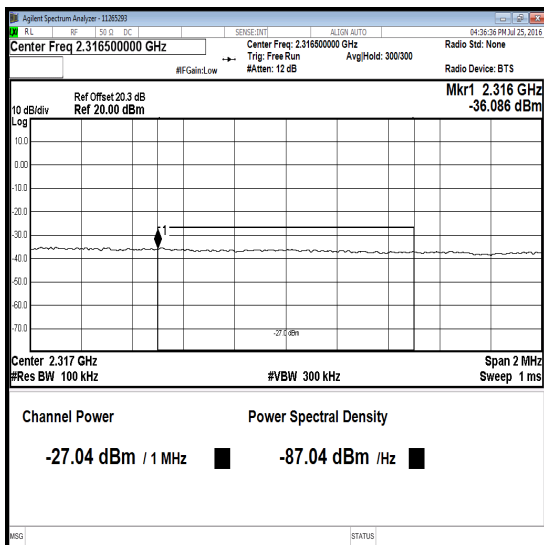
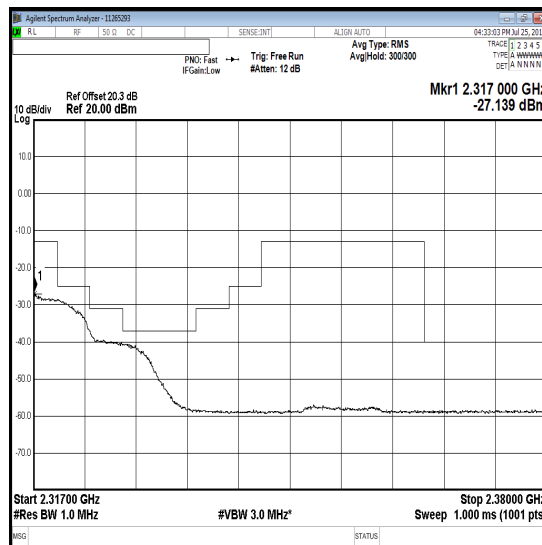
Transmitter Conducted Emission Mask – LAT (continued)**Results: 5 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / 16QAM**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2304	1	24	-48.6	-13.0	35.6	Complied
2316	1	0	-48.7	-13.0	35.7	Complied

**16QAM / 1 RB 24 Offset / 2280 to 2304 MHz****16QAM / 1 RB 0 Offset / 2316 to 2380 MHz**

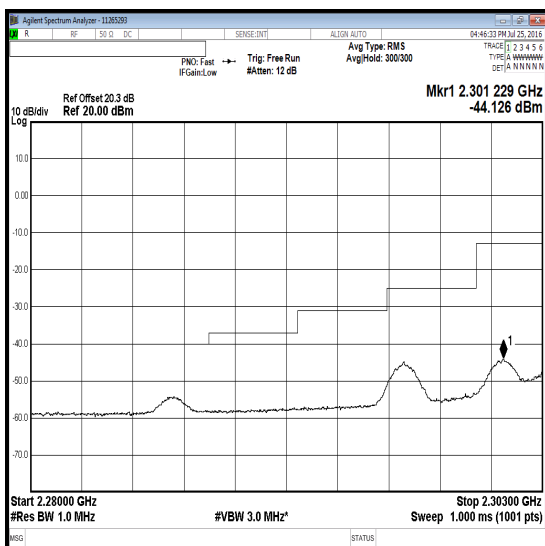
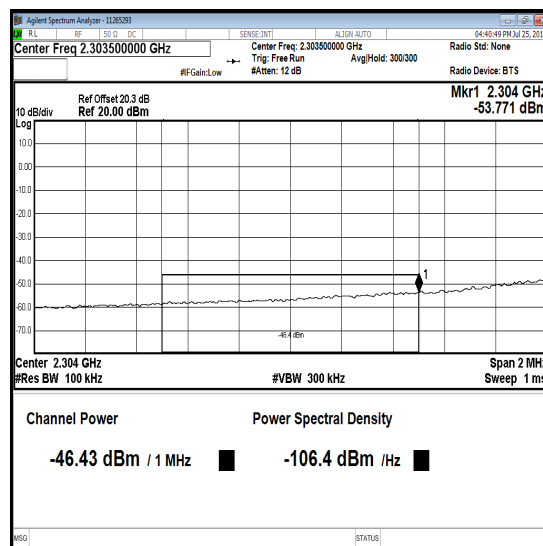
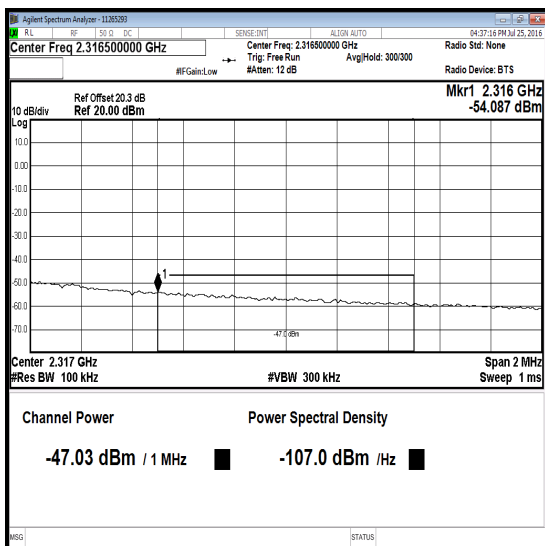
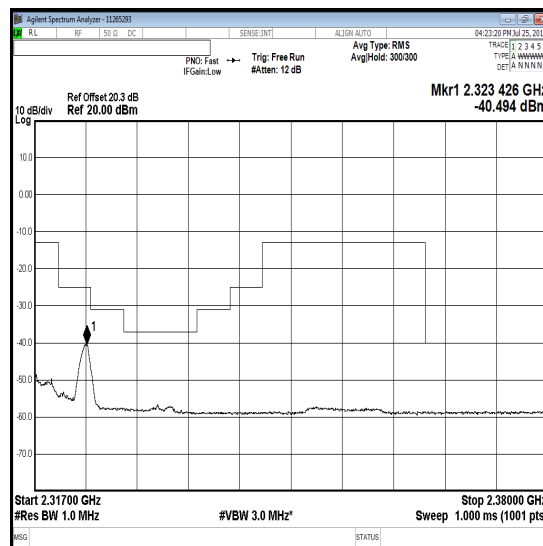
Transmitter Conducted Emission Mask – LAT (continued)**Results: 10 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2303	50	0	-31.0	-13.0	18.0	Complied
2303 to 2304	50	0	-30.7*	-13.0	17.7	Complied
2316 to 2317	50	0	-27.0*	-13.0	14.0	Complied
2317	50	0	-27.1	-13.0	14.1	Complied

**QPSK / 50 RB 0 Offset / 2280 to 2303 MHz****QPSK / 50 RB 0 Offset / 2303 to 2304 MHz / Integrated level****QPSK / 50 RB 0 Offset / 2316 to 2317 MHz / Integrated level****QPSK / 50 RB 0 Offset / 2317 to 2380 MHz**

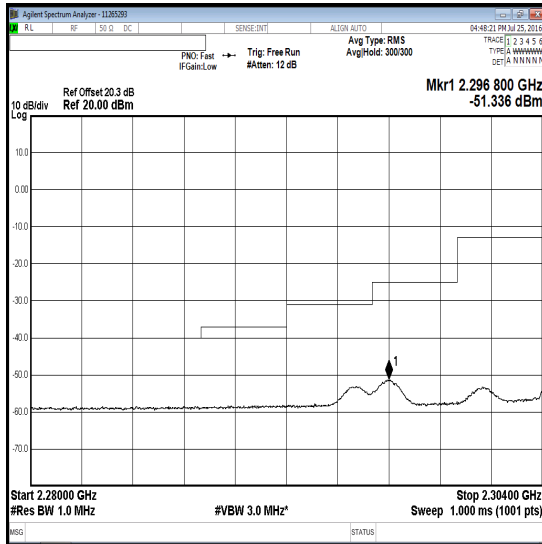
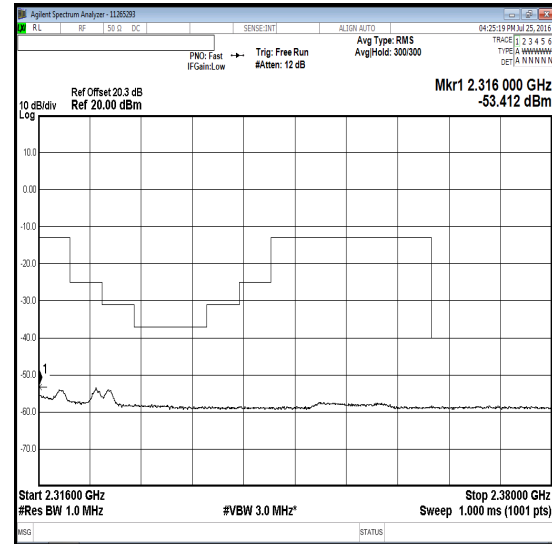
Transmitter Conducted Emission Mask – LAT (continued)**Results: 10 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2301.229	1	0	-44.1	-13.0	31.1	Complied
2303 to 2304	1	0	-46.4*	-13.0	33.4	Complied
2316 to 2317	1	49	-47.0*	-13.0	34.0	Complied
2323.426	1	49	-40.5	-25.0	15.5	Complied

**QPSK / 1 RB 0 Offset / 2280 to 2303 MHz****QPSK / 1 RB 0 Offset / 2303 to 2304 MHz / Integrated level****QPSK / 1 RB 49 Offset / 2316 to 2317 MHz / Integrated level****QPSK / 1 RB 49 Offset / 2317 to 2380 MHz**

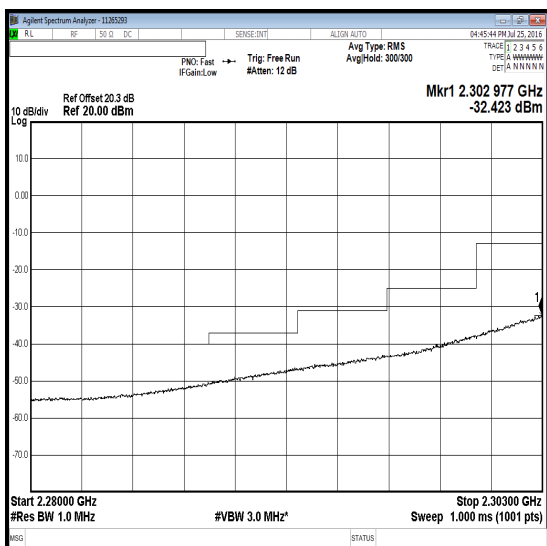
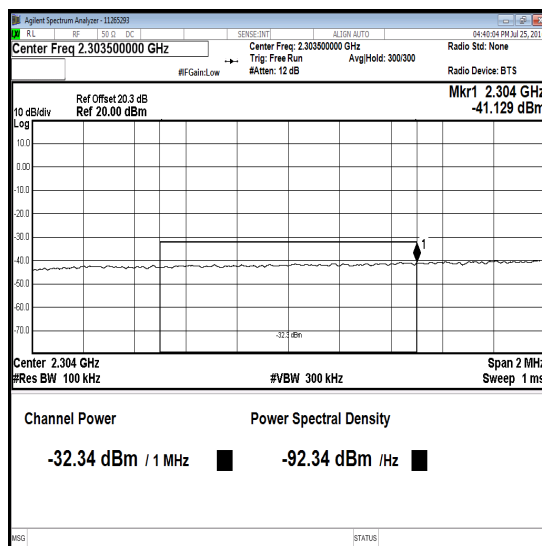
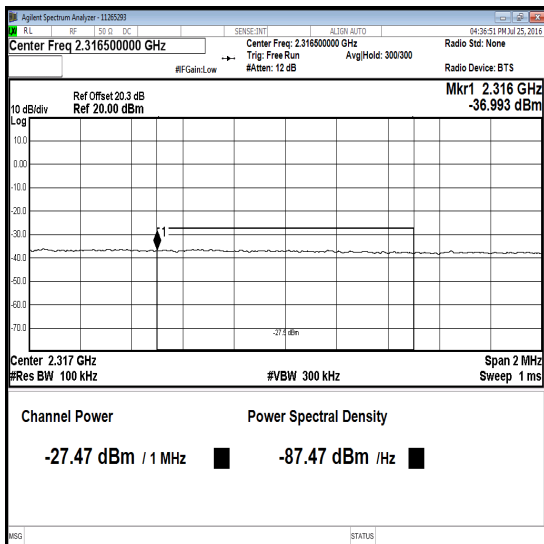
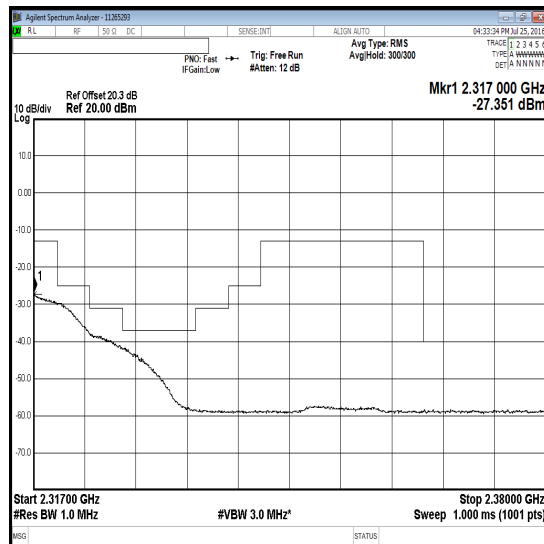
Transmitter Conducted Emission Mask – LAT (continued)**Results: 10 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2296.800	1	49	-51.3	-25.0	26.3	Complied
2316	1	0	-53.4	-13.0	40.4	Complied

**QPSK / 1 RB 49 Offset / 2280 to 2304 MHz****QPSK / 1 RB 0 Offset / 2316 to 2380 MHz**

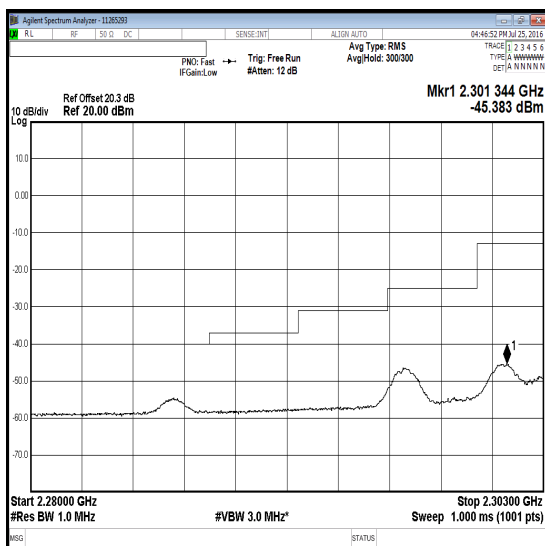
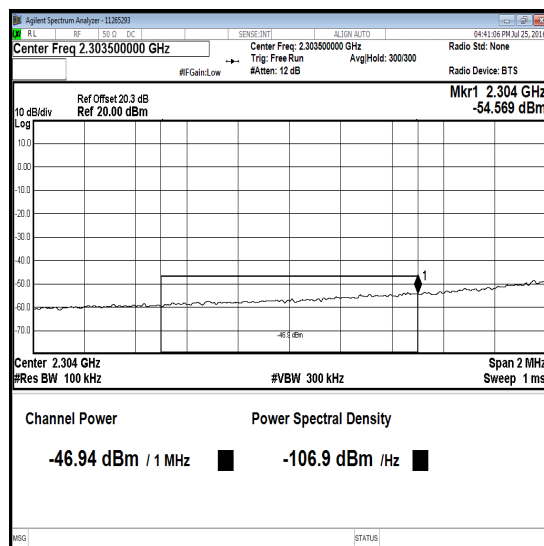
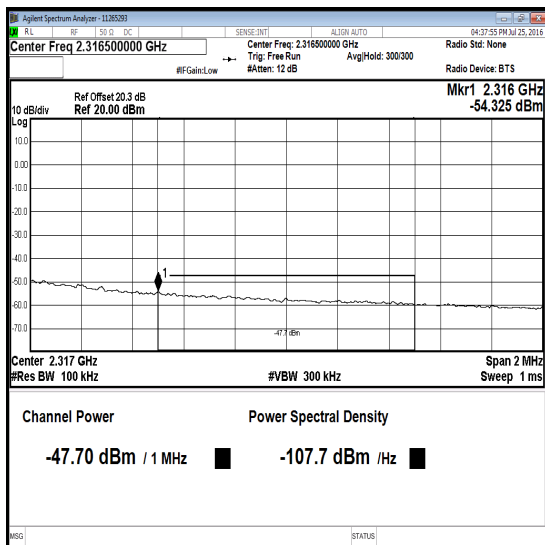
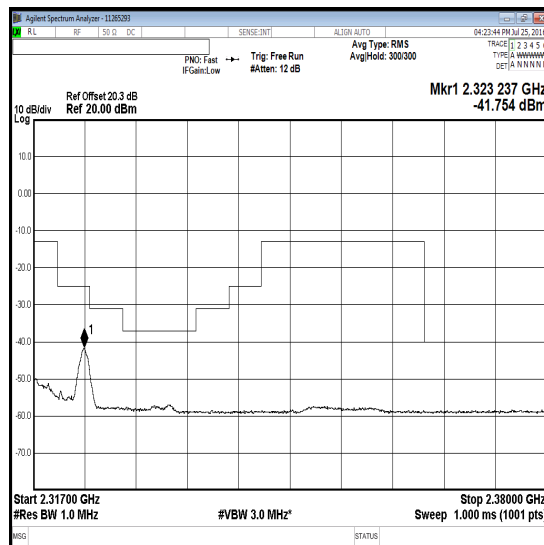
Transmitter Conducted Emission Mask – LAT (continued)**Results: 10 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / 16QAM**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2302.977	50	0	-32.4	-13.0	19.4	Complied
2303 to 2304	50	0	-32.3*	-13.0	19.3	Complied
2316 to 2317	50	0	-27.5*	-13.0	14.5	Complied
2317	50	0	-27.4	-13.0	14.4	Complied

**16QAM / 50 RB 0 Offset / 2280 to 2304 MHz****16QAM / 50 RB 0 Offset / 2280 to 2304 MHz****16QAM / 50 RB 0 Offset / 2316 to 2380 MHz****16QAM / 50 RB 0 Offset / 2316 to 2380 MHz**

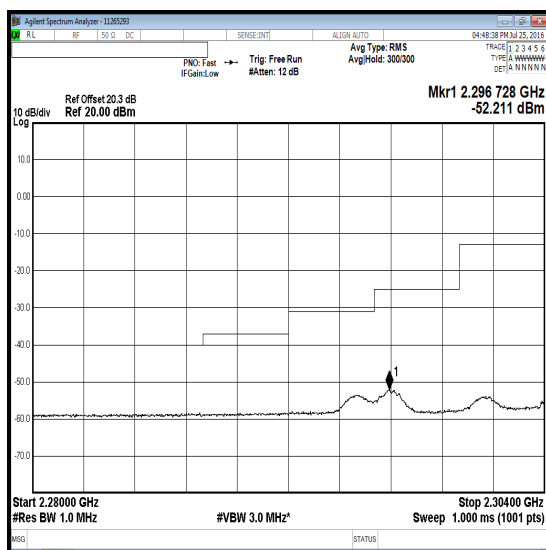
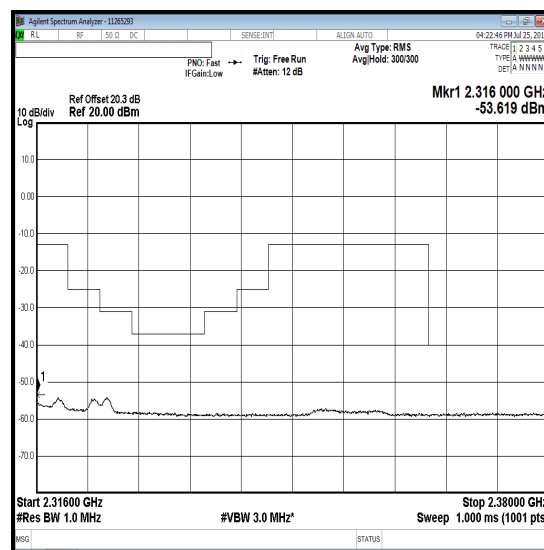
Transmitter Conducted Emission Mask – LAT (continued)**Results: 10 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / 16QAM**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2301.344	1	0	-45.4	-13.0	32.4	Complied
2303 to 2304	1	0	-46.9*	-13.0	33.9	Complied
2316 to 2317	1	49	-47.7*	-13.0	34.7	Complied
2323.237	1	49	-41.8	-25.0	16.8	Complied

**16QAM / 1 RB 0 Offset / 2280 to 2303 MHz****16QAM / 1 RB 0 Offset / 2303 to 2304 MHz / Integrated level****16QAM / 1 RB 49 Offset / 2316 to 2317 MHz / Integrated level****16QAM / 1 RB 49 Offset / 2317 to 2380 MHz**

Transmitter Conducted Emission Mask – LAT (continued)**Results: 10 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / 16QAM**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2296.728	1	49	-52.2	-25.0	27.2	Complied
2316	1	0	-53.6	-13.0	40.6	Complied

**16QAM / 1 RB 49 Offset / 2280 to 2304 MHz****16QAM / 1 RB 0 Offset / 2316 to 2380 MHz****Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M2002	Thermohygrometer	Testo	608-H1	45041825	02 Apr 2017	12
M1832	Signal Analyser	Agilent	N9010A	MY53470303	29 Mar 2018	24
A2504	Directional Coupler	AtlanTecRF	CDC-003060-10	13122501839	Calibrated before use	-
A2507	Attenuator	AtlanTecRF	AN18-10	821846#2	Calibrated before use	-
M199	Power Meter	Rohde & Schwarz	NRVS	827023/075	11 Apr 2018	24
M1267	Thermal Power Sensor	Rohde & Schwarz	NRV-Z52	100155	15 Apr 2018	24
S0579	DC Power Supply	TTi	EX1810R	444110	Calibrated before use	-
M1269	Multimeter	Fluke	179	90250210	13 May 2017	12

5.2.5. Transmitter Conducted Emission Mask – UAT**Test Summary:**

Test Engineer:	Ben Mercer	Test Date:	25 July 2016
Test Sample IMEI:	358640070309241		

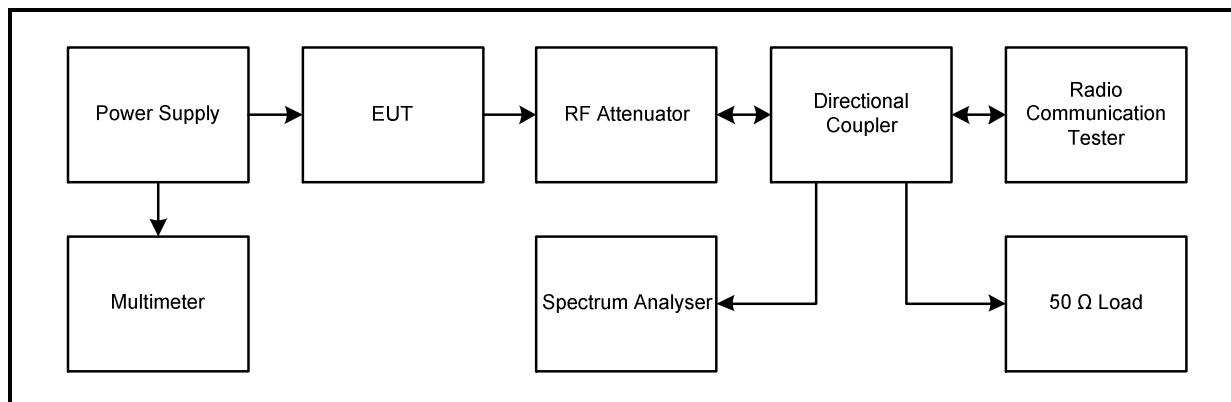
FCC Reference:	Parts 2.1051 & 27.53(a)(4)
Test Method Used:	KDB 971168 Section 6 referencing FCC Part 27.53 & notes below

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	55

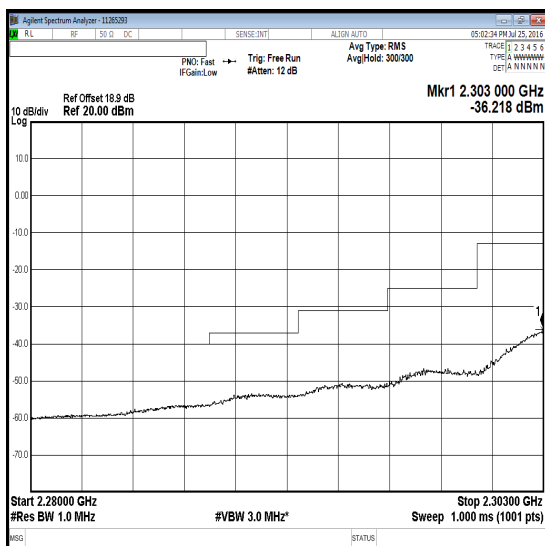
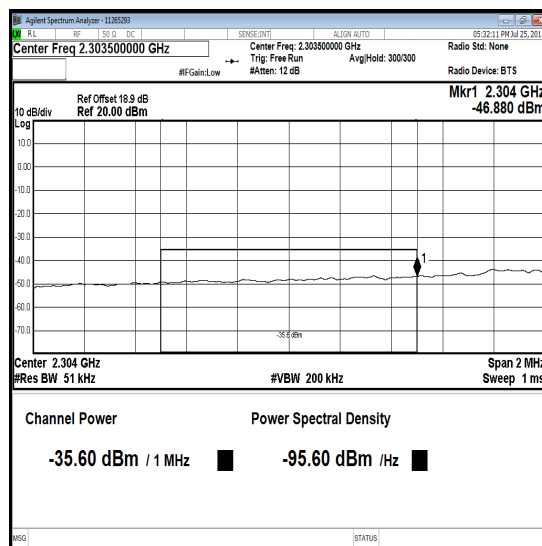
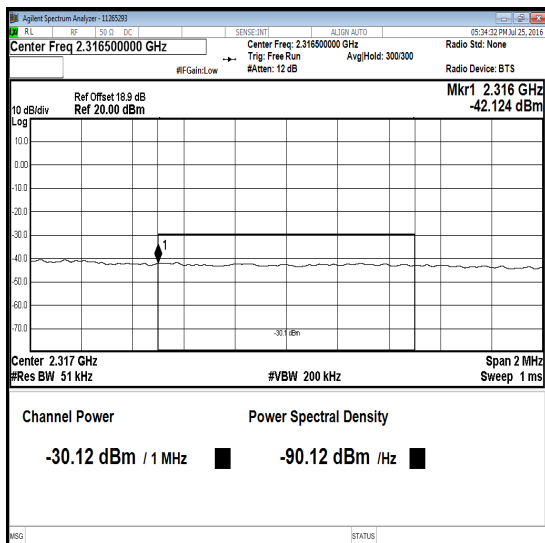
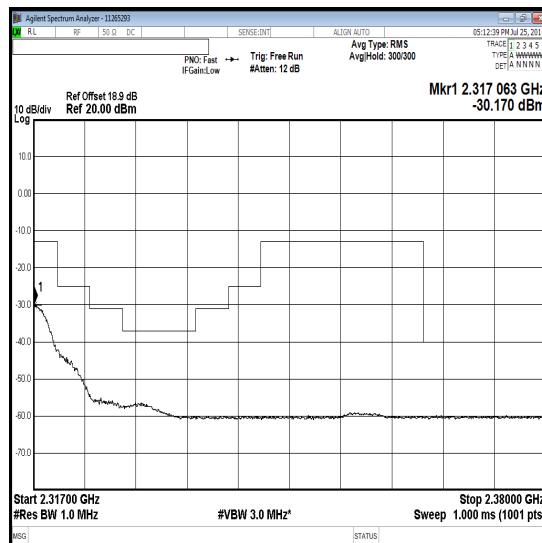
Note(s):

1. Measurements were performed conducted with the antenna gain included in the spectrum analyser reference level offset. The customer stated that the antenna gain is -2.9 dB.
2. Measurements were performed with the EUT transmitting QPSK and 16QAM modulation schemes, with resource block settings stated in section 4.3.
3. The plots of this section illustrate the conducted emissions at band edges, at frequencies below 2304 MHz and above 2316 MHz. Compliance in the frequency ranges 2304 to 2305 MHz and 2315 to 2516 MHz are shown in section 5.2.9 of this report.
4. In accordance with Part 27.53(a)(5), a narrower resolution bandwidth may be used, provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz. The channel power function of the spectrum analyser was used where necessary.
5. * Integrated level (dBm)

Test setup:

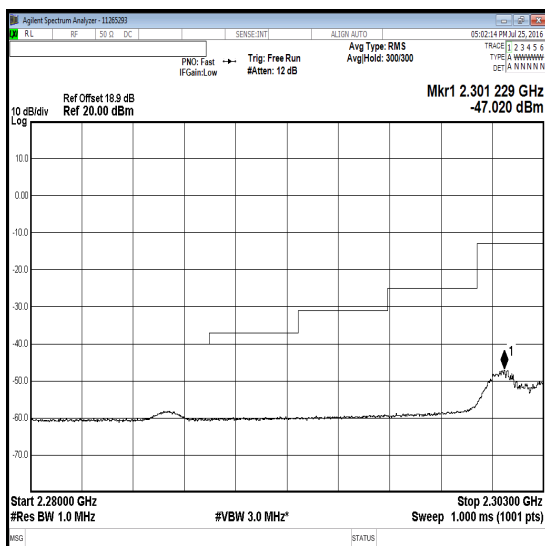
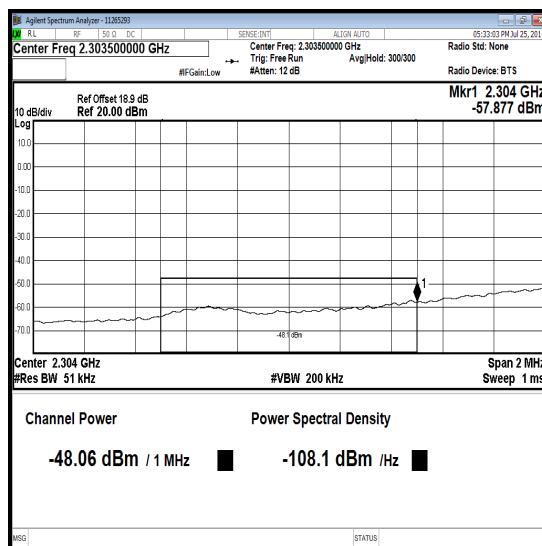
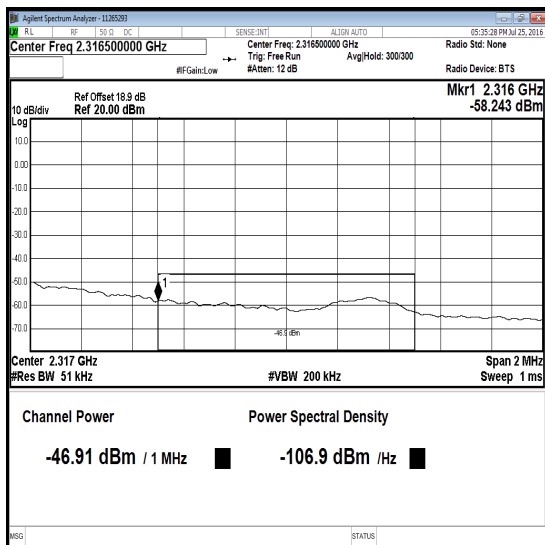
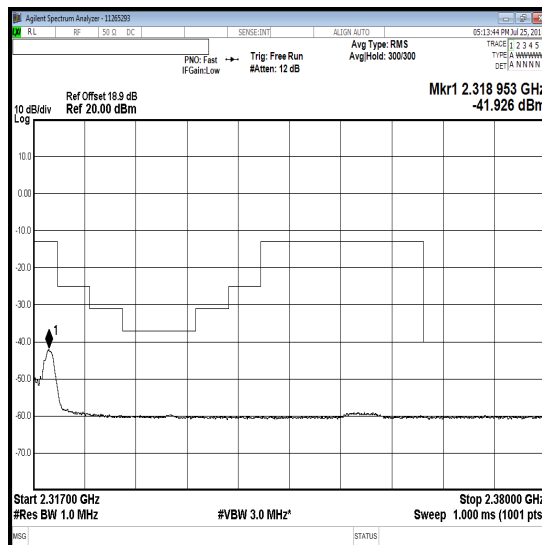
Transmitter Conducted Emission Mask – UAT (continued)**Results: 5 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2303	25	0	-36.2	-13.0	23.2	Complied
2303 to 2304	25	0	-35.6*	-13.0	22.6	Complied
2316 to 2317	25	0	-30.1*	-13.0	17.1	Complied
2317.063	25	0	-30.2	-13.0	17.2	Complied

**QPSK / 25 RB 0 Offset / 2280 to 2303 MHz****QPSK / 25 RB 0 Offset / 2303 to 2304 MHz / Integrated level****QPSK / 25 RB 0 Offset / 2316 to 2317 MHz / Integrated level****QPSK / 25 RB 0 Offset / 2317 to 2380 MHz**

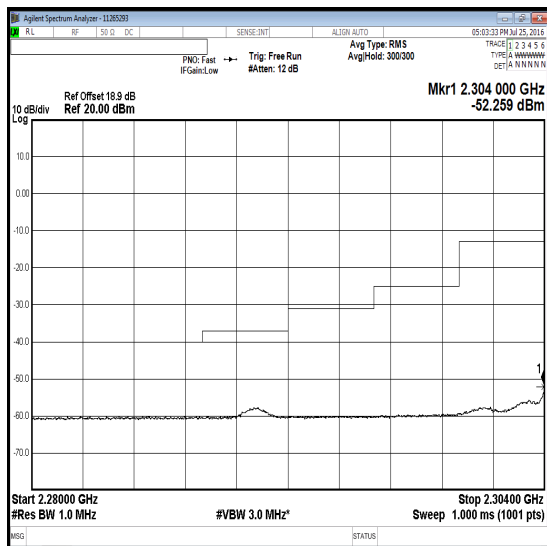
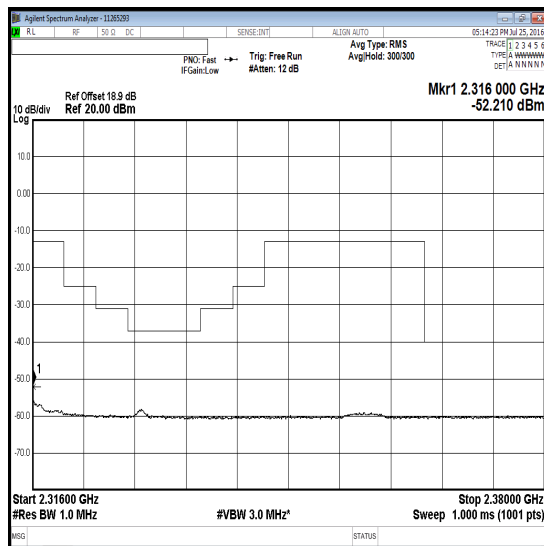
Transmitter Conducted Emission Mask – UAT (continued)**Results: 5 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2301.229	1	0	-47.0	-13.0	34.0	Complied
2303 to 2304	1	0	-48.1 *	-13.0	35.1	Complied
2316 to 2317	1	24	-46.9*	-13.0	33.9	Complied
2318.953	1	24	-41.9	-13.0	28.9	Complied

**QPSK / 1 RB 0 Offset / 2280 to 2303 MHz****QPSK / 1 RB 0 Offset / 2303 to 2304 MHz / Integrated level****QPSK / 1 RB 24 Offset / 2316 to 2317 MHz / Integrated level****QPSK / 1 RB 24 Offset / 2317 to 2380 MHz**

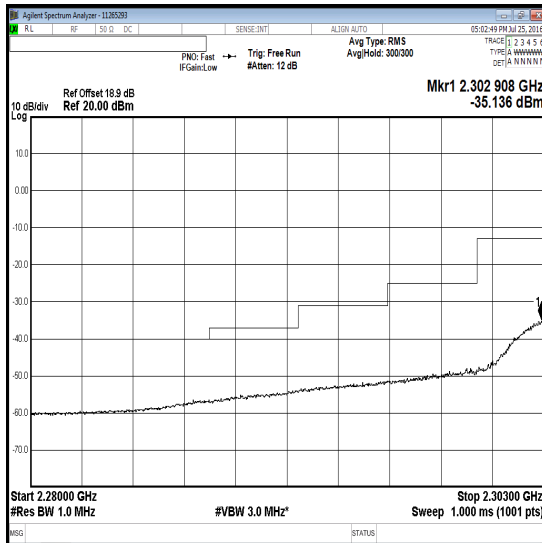
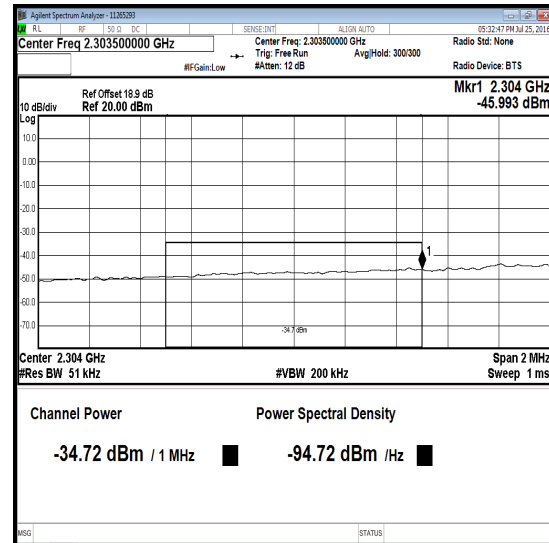
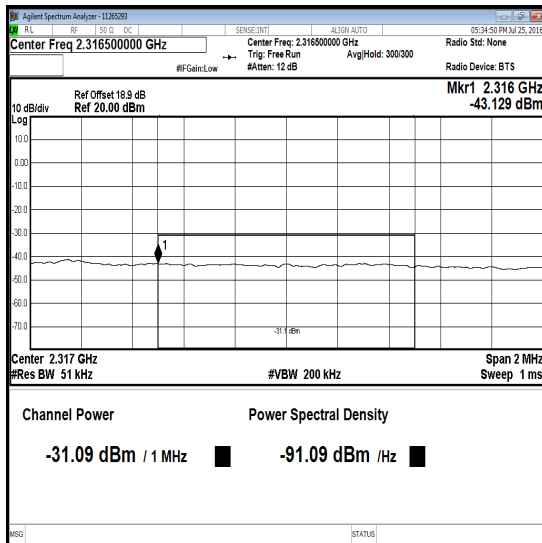
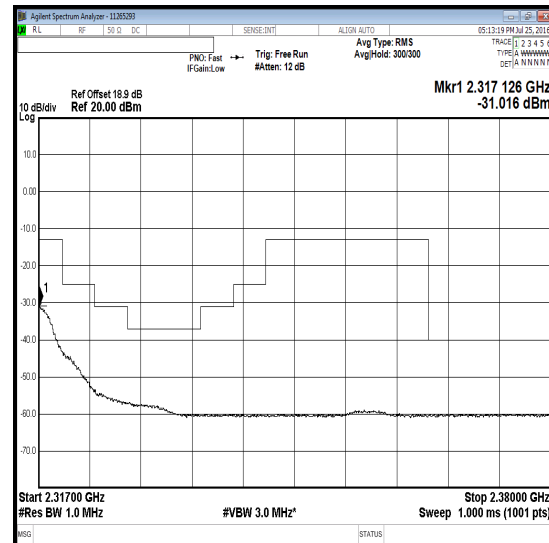
Transmitter Conducted Emission Mask – UAT (continued)**Results: 5 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2304	1	24	-52.3	-13.0	39.3	Complied
2316	1	0	-52.2	-13.0	39.2	Complied

**QPSK / 1 RB 24 Offset / 2280 to 2304 MHz****QPSK / 1 RB 0 Offset / 2316 to 2380 MHz**

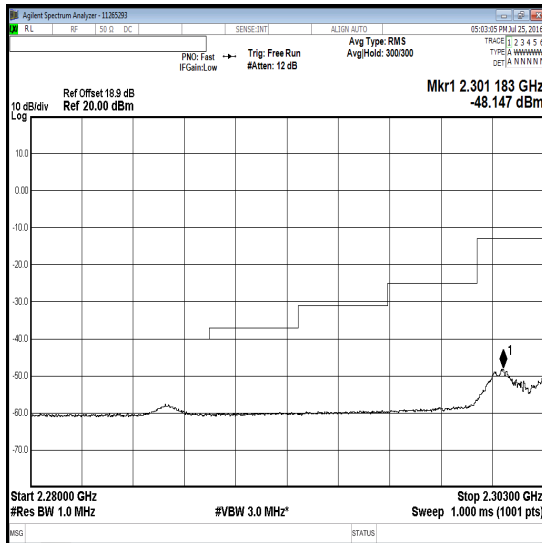
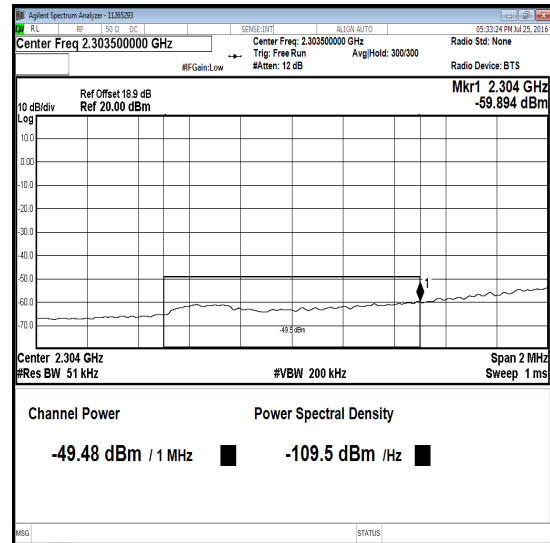
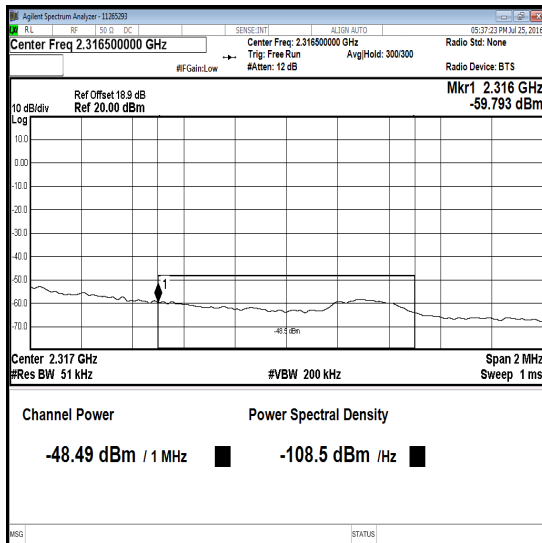
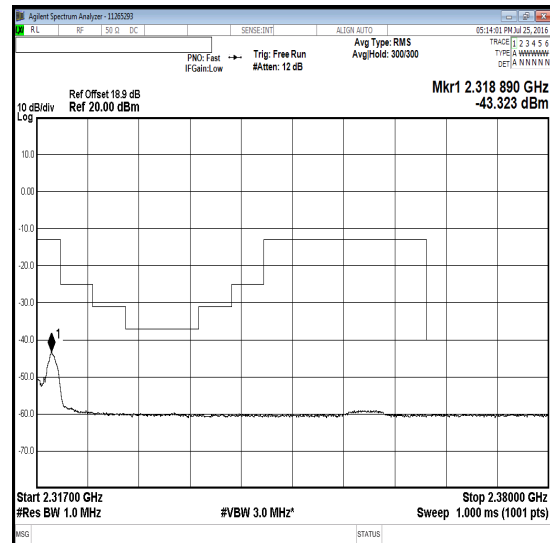
Transmitter Conducted Emission Mask – UAT (continued)**Results: 5 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / 16QAM**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2302.908	25	0	-35.1	-13.0	22.1	Complied
2303 to 2304	25	0	-34.7*	-13.0	21.7	Complied
2316 to 2317	25	0	-31.1*	-13.0	18.1	Complied
2317.126	25	0	-31.0	-13.0	18.0	Complied

**16QAM / 25 RB 0 Offset / 2280 to 2303 MHz****16QAM / 25 RB 0 Offset / 2303 to 2304 MHz / Integrated level****16QAM / 25 RB 0 Offset / 2316 to 2317 MHz / Integrated level****16QAM / 25 RB 0 Offset / 2317 to 2380 MHz**

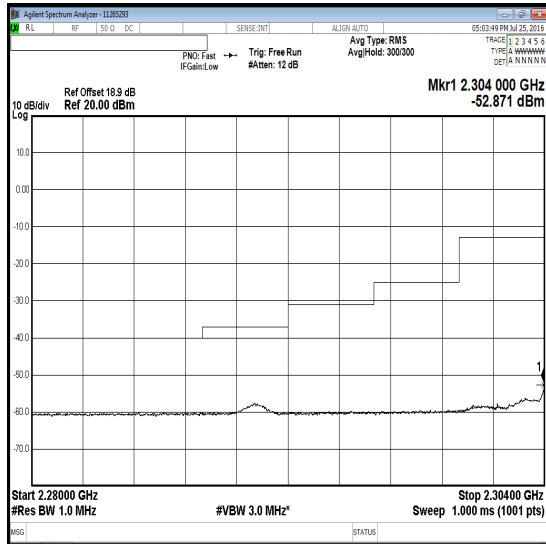
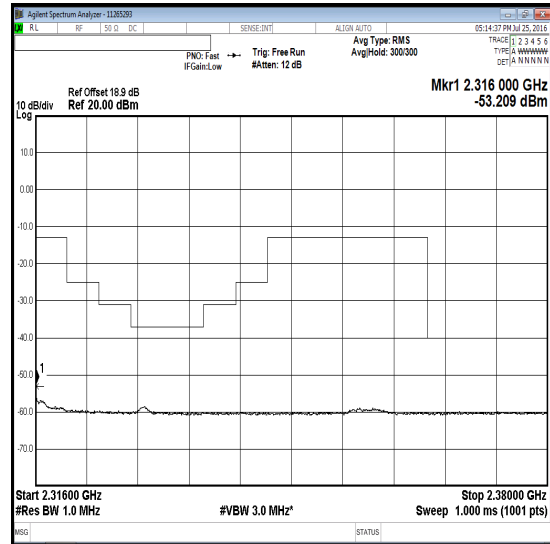
Transmitter Conducted Emission Mask – UAT (continued)**Results: 5 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / 16QAM**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2301.183	1	0	-48.1	-13.0	35.1	Complied
2303 to 2304	1	0	-49.5*	-13.0	36.5	Complied
2316 to 2317	1	24	-48.5*	-13.0	35.5	Complied
2318.890	1	24	-43.3	-13.0	30.3	Complied

**16QAM / 1 RB 0 Offset / 2280 to 2303 MHz****16QAM / 1 RB 0 Offset / 2303 to 2304 MHz / Integrated level****16QAM / 1 RB 24 Offset / 2316 to 2317 MHz / Integrated level****16QAM / 1 RB 24 Offset / 2317 to 2380 MHz**

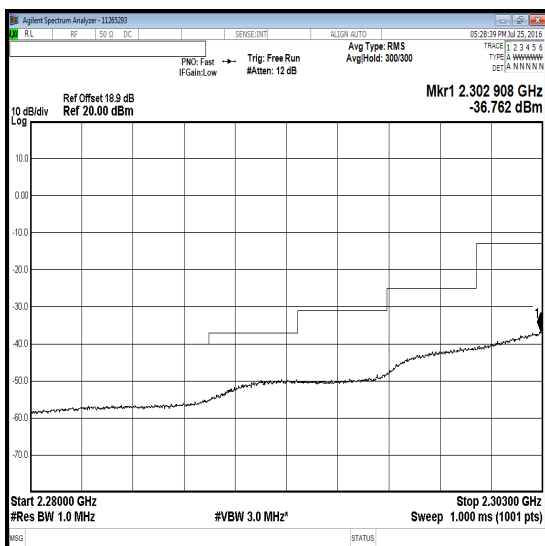
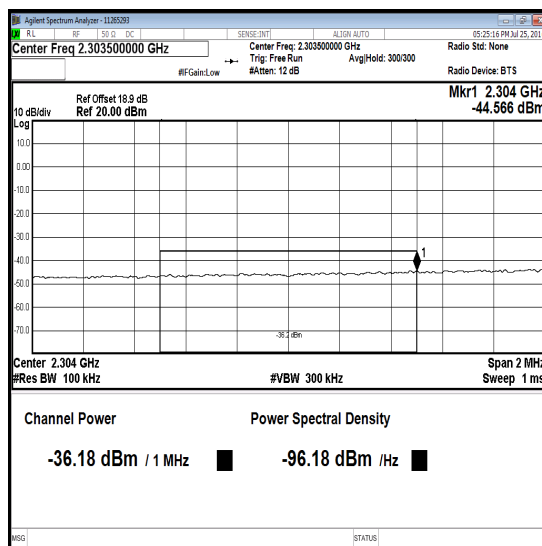
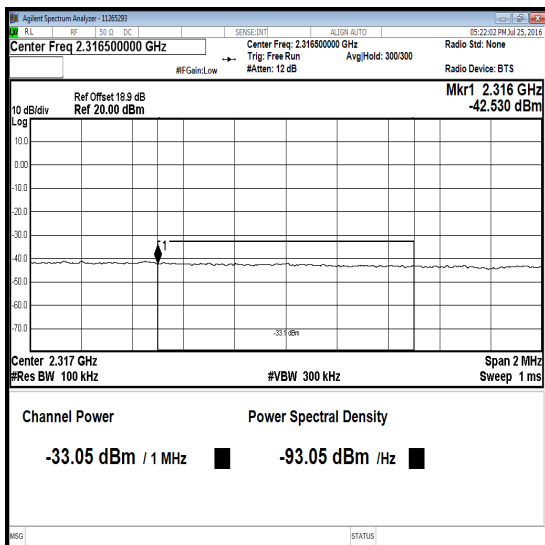
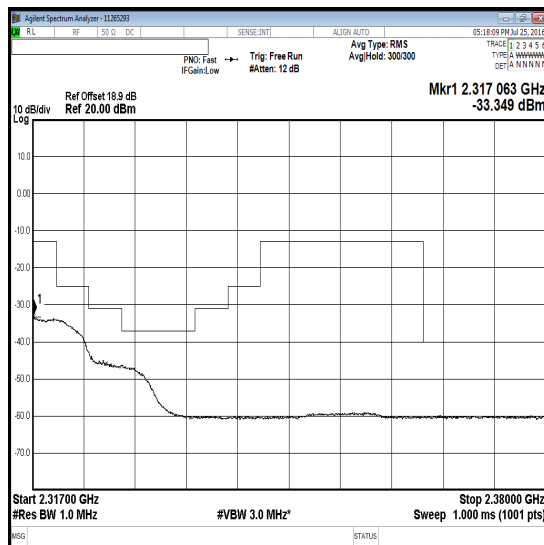
Transmitter Conducted Emission Mask – UAT (continued)**Results: 5 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / 16QAM**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2304	1	24	-52.9	-13.0	39.9	Complied
2316	1	0	-53.2	-13.0	40.2	Complied

**16QAM / 1 RB 24 Offset / 2280 to 2304 MHz****16QAM / 1 RB 0 Offset / 2316 to 2380 MHz**

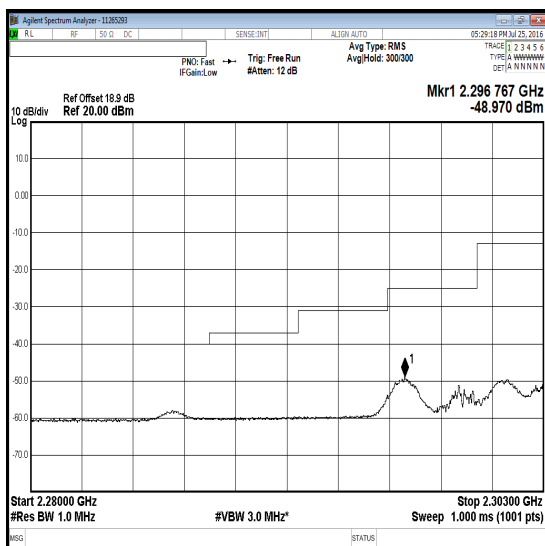
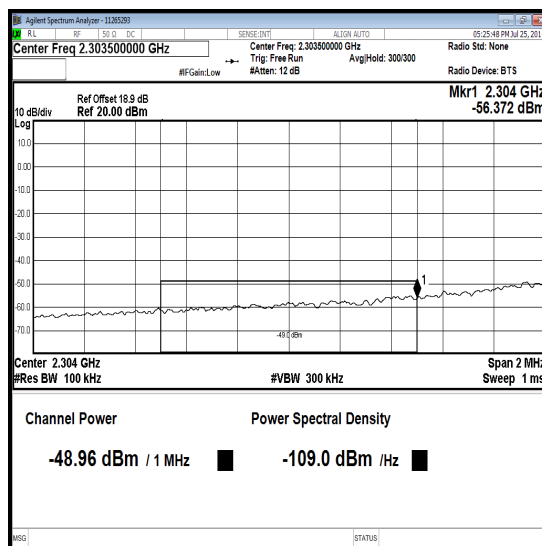
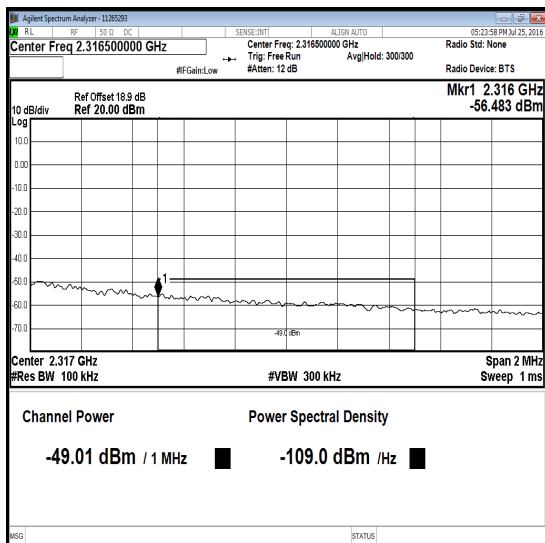
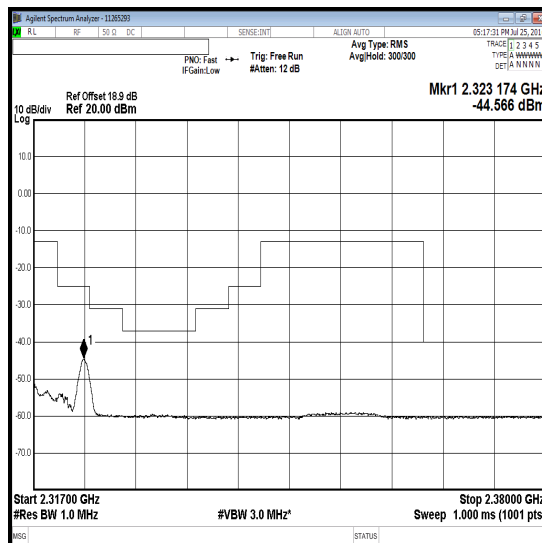
Transmitter Conducted Emission Mask – UAT (continued)**Results: 10 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2302.908	50	0	-36.8	-13.0	23.8	Complied
2303 to 2304	50	0	-36.2*	-13.0	23.2	Complied
2316 to 2317	50	0	-33.0*	-13.0	20.0	Complied
2317.063	50	0	-33.3	-13.0	20.3	Complied

**QPSK / 50 RB 0 Offset / 2280 to 2303 MHz****QPSK / 50 RB 0 Offset / 2303 to 2304 MHz / Integrated level****QPSK / 50 RB 0 Offset / 2316 to 2317 MHz / Integrated level****QPSK / 50 RB 0 Offset / 2317 to 2380 MHz**

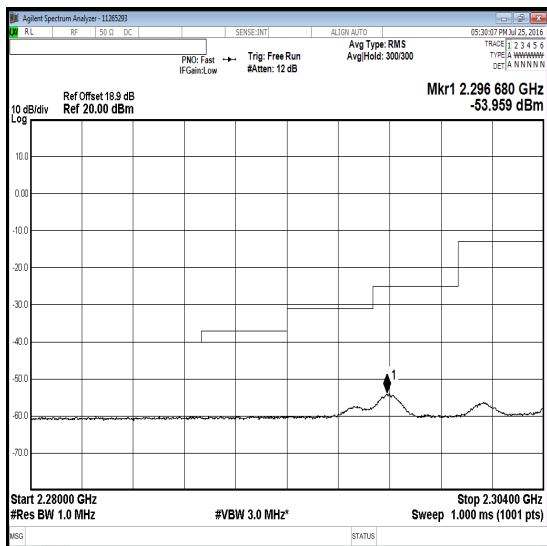
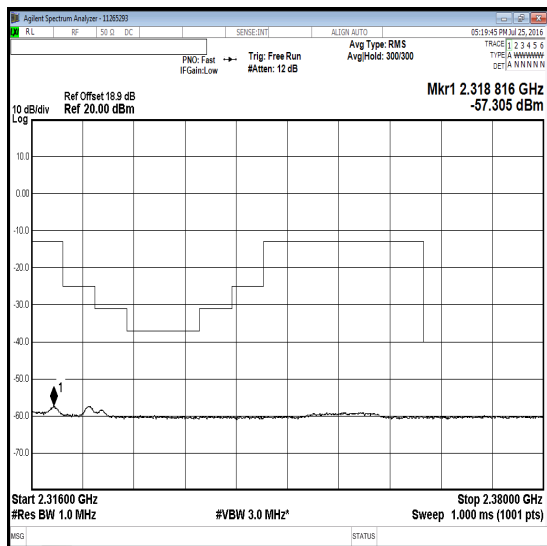
Transmitter Conducted Emission Mask – UAT (continued)**Results: 10 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2296.767	1	0	-49.0	-25.0	24.0	Complied
2303 to 2304	1	0	-49.0*	-13.0	36.0	Complied
2316 to 2317	1	49	-49.0*	-13.0	36.0	Complied
2323.174	1	49	-44.6	-25.0	19.6	Complied

**QPSK / 1 RB 0 Offset / 2280 to 2303 MHz****QPSK / 1 RB 0 Offset / 2303 to 2304 MHz / Integrated level****QPSK / 1 RB 49 Offset / 2316 to 2317 MHz / Integrated level****QPSK / 1 RB 49 Offset / 2317 to 2380 MHz**

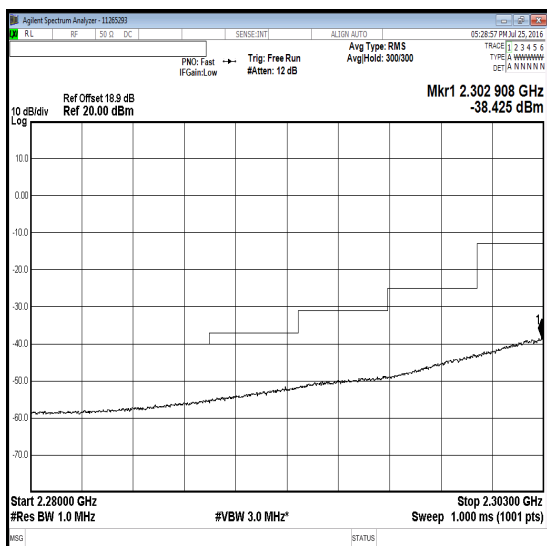
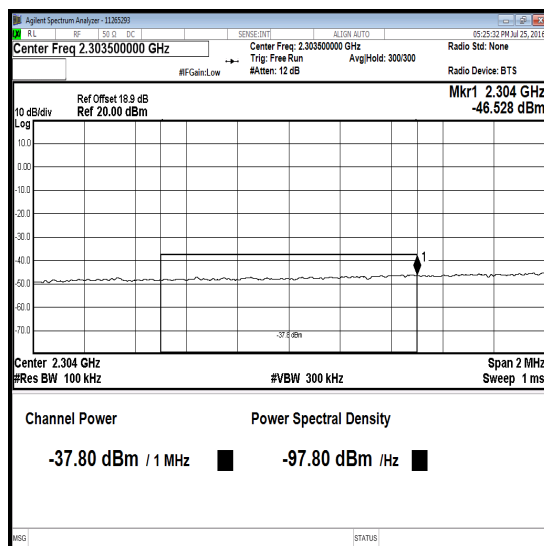
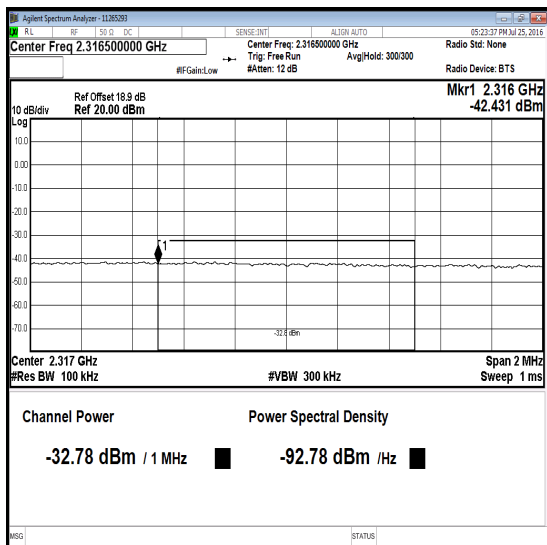
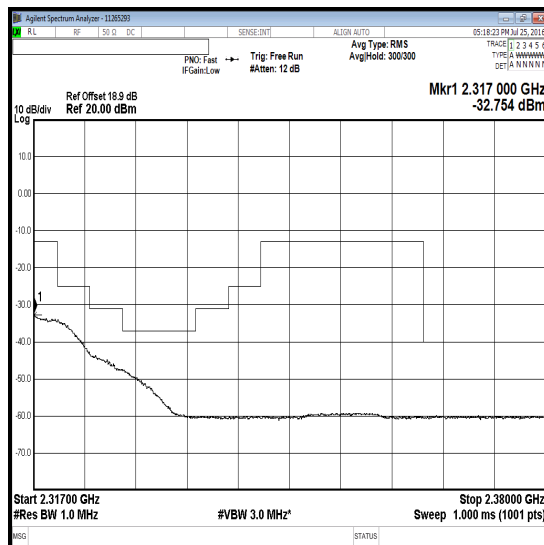
Transmitter Conducted Emission Mask – UAT (continued)**Results: 10 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2296.680	1	49	-54.0	-25.0	29.0	Complied
2318.816	1	0	-57.3	-13.0	44.3	Complied

**QPSK / 1 RB 49 Offset / 2280 to 2304 MHz****QPSK / 1 RB 0 Offset / 2316 to 2380 MHz**

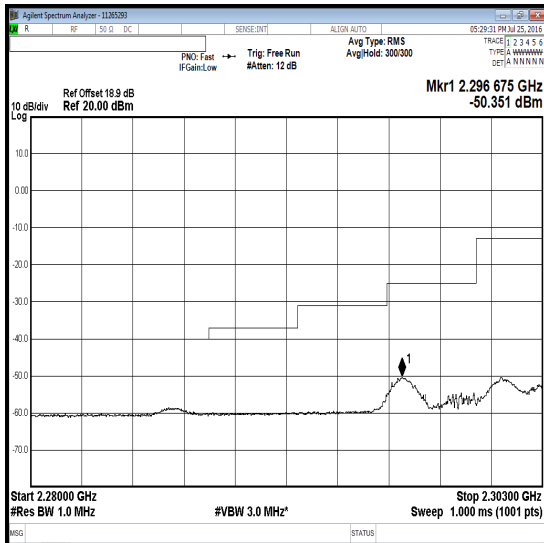
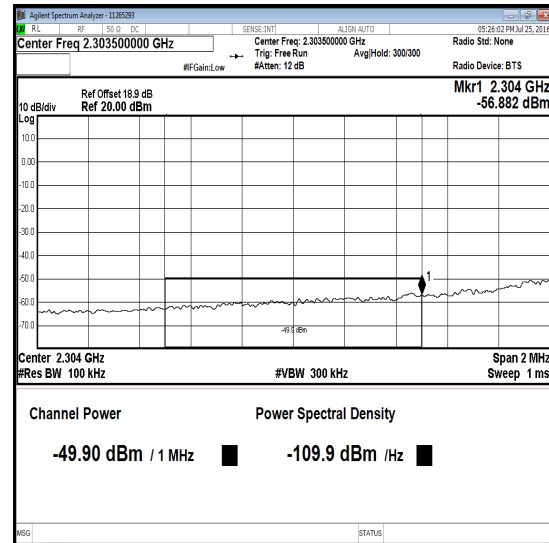
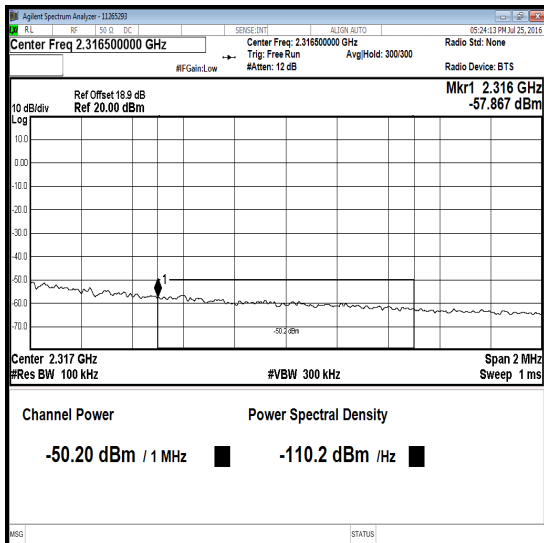
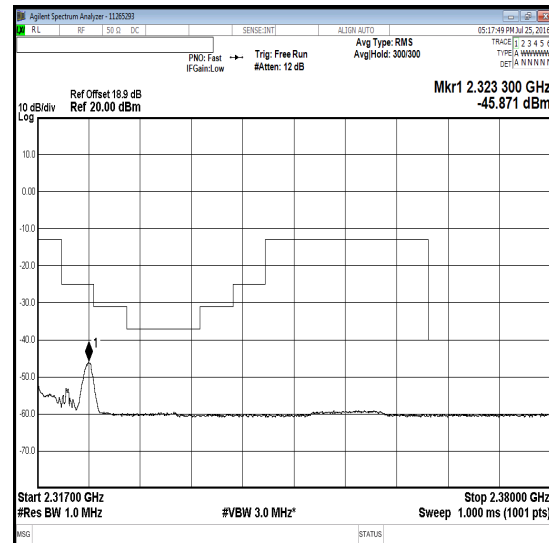
Transmitter Conducted Emission Mask – UAT (continued)**Results: 10 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / 16QAM**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2302.908	50	0	-38.4	-13.0	25.4	Complied
2303 to 2304	50	0	-37.8*	-13.0	24.8	Complied
2316 to 2317	50	0	-32.8*	-13.0	19.8	Complied
2317	50	0	-32.8	-13.0	19.8	Complied

**16QAM / 50 RB 0 Offset/ 2280 to 2303 MHz****16QAM / 50 RB 0 Offset/ 2303 to 2304 MHz / Integrated level****16QAM / 50 RB 0 Offset/ 2316 to 2317 MHz / Integrated level****16QAM / 50 RB 0 Offset/ 2317 to 2380 MHz**

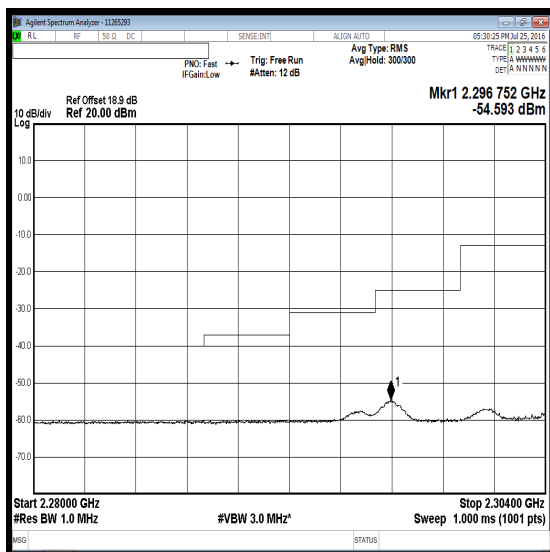
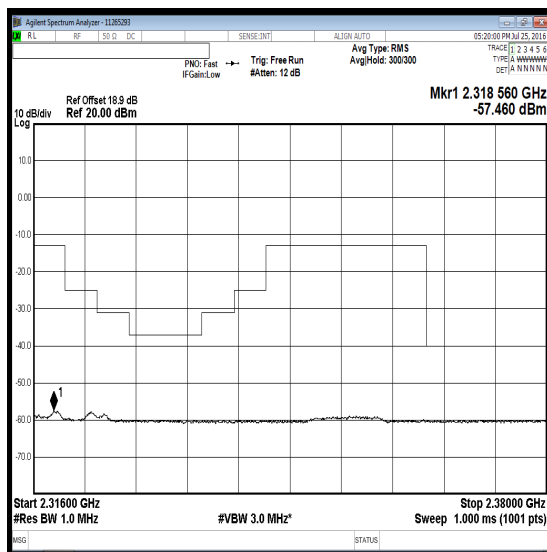
Transmitter Conducted Emission Mask – UAT (continued)**Results: 10 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / 16QAM**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2296.675	1	0	-50.4	-25.0	25.4	Complied
2303 to 2304	1	0	-49.9*	-13.0	36.9	Complied
2316 to 2317	1	49	-50.2*	-13.0	37.2	Complied
2323.300	1	49	-45.9	-25.0	20.9	Complied

**16QAM / 1 RB 0 Offset / 2280 to 2303 MHz****16QAM / 1 RB 0 Offset / 2303 to 2304 MHz / Integrated level****16QAM / 1 RB 49 Offset / 2316 to 2317 MHz / Integrated level****16QAM / 1 RB 49 Offset / 2317 to 2380 MHz**

Transmitter Conducted Emission Mask – UAT (continued)**Results: 10 MHz Channel Bandwidth / 2280 to 2304 MHz & 2316 to 2380 MHz / 16QAM**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2296.752	1	49	-54.6	-25.0	29.6	Complied
2318.560	1	0	-57.5	-13.0	44.5	Complied

**16QAM / 1 RB 49 Offset / 2280 to 2304 MHz****16QAM / 1 RB 0 Offset / 2316 to 2380 MHz****Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M2002	Thermohygrometer	Testo	608-H1	45041825	02 Apr 2017	12
M1832	Signal Analyser	Agilent	N9010A	MY53470303	29 Mar 2018	24
A2504	Directional Coupler	AtlanTecRF	CDC-003060-10	13122501839	Calibrated before use	-
A2507	Attenuator	AtlanTecRF	AN18-10	821846#2	Calibrated before use	-
M199	Power Meter	Rohde & Schwarz	NRVS	827023/075	11 Apr 2018	24
M1267	Thermal Power Sensor	Rohde & Schwarz	NRV-Z52	100155	15 Apr 2018	24
S0579	DC Power Supply	TTi	EX1810R	444110	Calibrated before use	-
M1269	Multimeter	Fluke	179	90250210	13 May 2017	12

5.2.6. Transmitter Radiated Spurious Emissions – LAT**Test Summary:**

Test Engineer:	Andrew Edwards	Test Dates:	13 July 2016 & 17 July 2016
Test Sample IMEI:	358640070286456		

FCC Reference:	Parts 2.1053 & 27.53(a)(4)
Test Method Used:	KDB 971168 Section 6.1 referencing FCC Part 2.1053
Frequency Range:	30 MHz to 24 GHz
Configuration:	10 MHz, QPSK, 1RB, 0 Offset

Environmental Conditions:

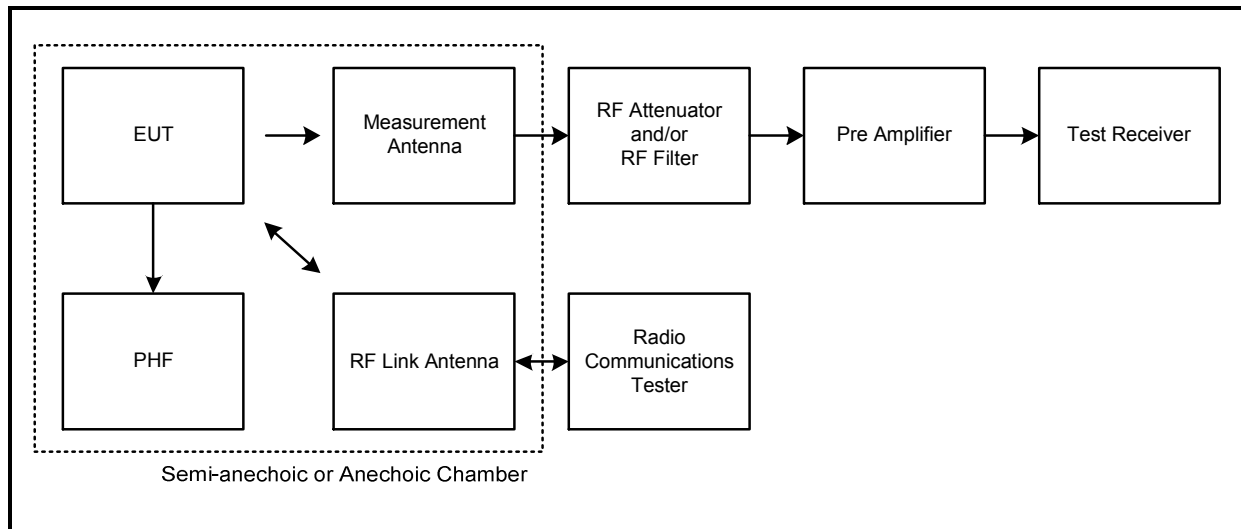
Temperature (°C):	25 to 26
Relative Humidity (%):	42 to 46

Note(s):

1. The EUT was set to transmit with a 10 MHz channel bandwidth with QPSK modulation applied and 1 resource block with 0 offset, as this was found to be the worst case modulation scheme with regards to emissions after preliminary investigations and was therefore deemed to be the worst case.
2. The emission seen on the 1 GHz to 3 GHz plot at approximately 2310 MHz is the EUT carrier.
3. No spurious emissions were detected above the measurement system noise floor therefore the highest peak noise floor reading of the measuring receiver was recorded in the table below.
4. Middle channel results are recorded in this report and are representative of bottom and top channel results which are held on the UL IT server and available for inspection on request.
5. Pre-scan measurements below 1 GHz are performed on separate plots with different transducer factors for vertical and horizontal polarisation. The pre-scan plot for 30 MHz to 1 GHz in this test report is for vertical only. All other plots are stored on the company server and are available if required.
6. Measurements below 1 GHz were performed in a semi-anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
7. Pre-scans above 1 GHz were performed in a fully anechoic chamber (Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT.
8. Radiated spurious emission testing between 150 kHz and 30 MHz was performed for support of the NFC test report. No spurious emissions were observed above the noise floor of the measurement system.

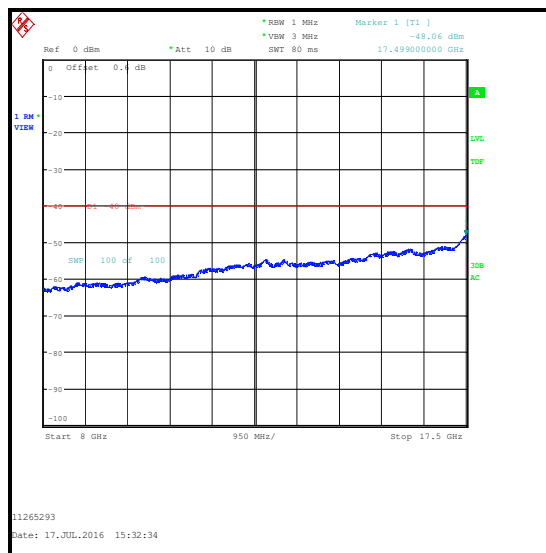
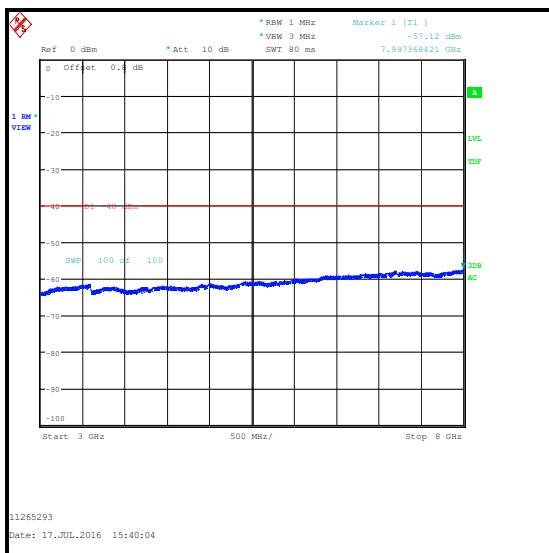
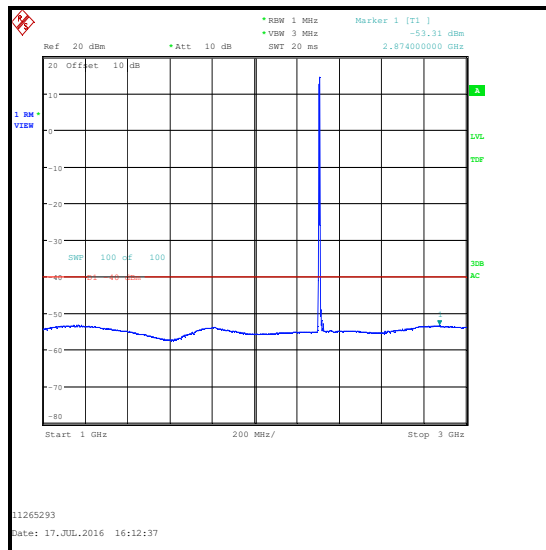
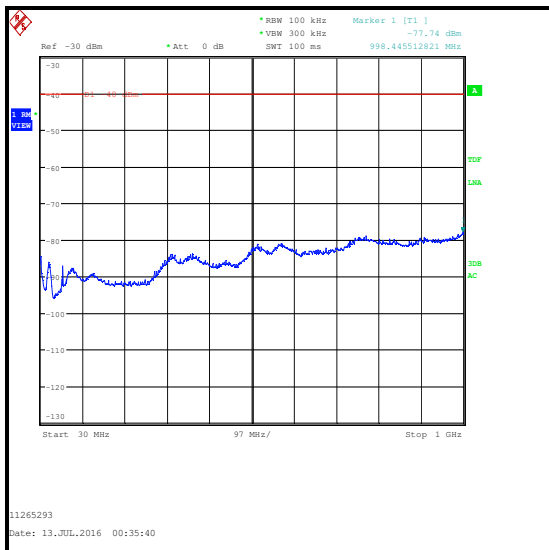
Transmitter Radiated Spurious Emissions – LAT (continued)

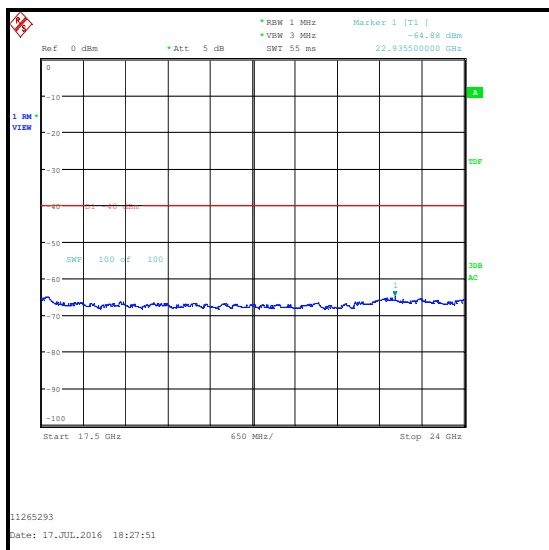
Test setup for radiated measurements:



Results: Middle Channel

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
17499.000	-48.1	-40.0	8.1	Complied

Transmitter Radiated Spurious Emissions – LAT (continued)

Transmitter Radiated Spurious Emissions – LAT (continued)**Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M2003	Thermohygrometer	Testo	608-H1	45046641	22 Apr 2017	12
K0017	3m RSE Chamber	Rainford EMC	N/A	N/A	17 May 2017	12
M1995	Test Receiver	Rohde & Schwarz	ESU40	100428	21 Mar 2017	12
A2888	Antenna	Schwarzbeck	VULB 9163	9163-941	07 Apr 2017	12
A2889	Antenna	Schwarzbeck	BBHA 9120 B	BBHA 9120 B 653	07 Apr 2017	12
A2890	Antenna	Schwarzbeck	HWRD 750	014	06 May 2017	12
A2892	Antenna	Schwarzbeck	BBHA 9170	9170-727	07 Apr 2017	12
A2863	Pre-Amplifier	Agilent	8449B	3008A02100	07 Jan 2017	12
A2891	Pre-Amplifier	Schwarzbeck	BBV 9718	9718-306	07 Apr 2017	12
A2893	Pre-Amplifier	Schwarzbeck	BBV 9721	9721-021	07 Apr 2017	12
S0582	Power Supply	Schwarzbeck	PS9721	00005	Calibrated before use	-
A2916	10dB Attenuator	AtlanTecRF	AN18W5-10	832827#1	19 May 2017	12
A2914	High Pass Filter	AtlanTecRF	AFH-03000	2155	19 May 2017	12
A2947	High Pass Filter	AtlanTecRF	AFH-07000	1601900001	01 Jun 2017	12

5.2.7. Transmitter Radiated Spurious Emissions – UAT**Test Summary:**

Test Engineer:	Andrew Edwards	Test Dates:	13 July 2016 to 17 July 2016
Test Sample IMEI:	358640070309175		

FCC Reference:	Parts 2.1053 & 27.53(a)(4)
Test Method Used:	KDB 971168 Section 6.1 referencing FCC Part 2.1053
Frequency Range:	30 MHz to 24 GHz
Configuration:	10 MHz, QPSK, 1RB, 0 Offset

Environmental Conditions:

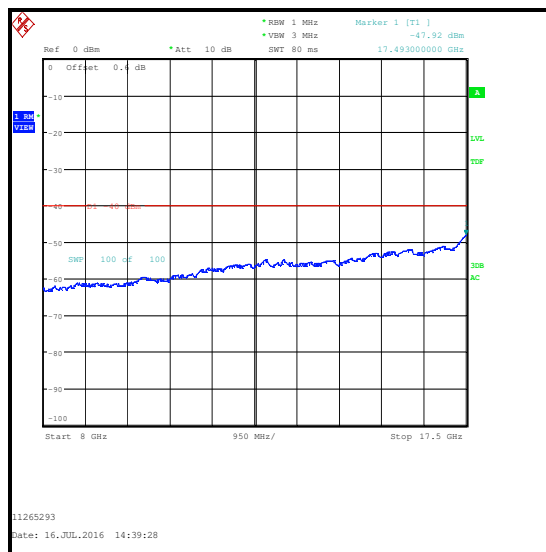
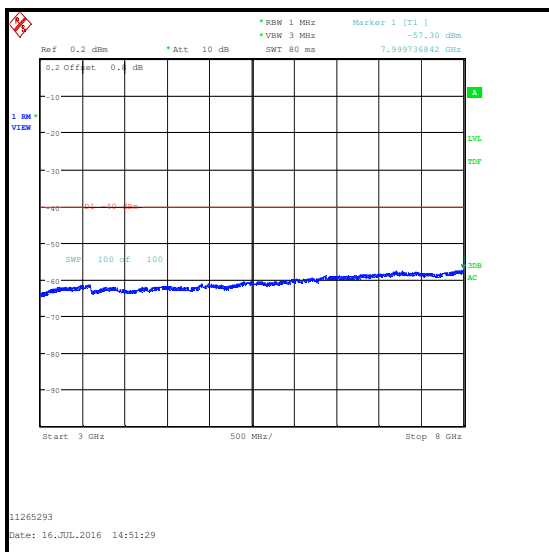
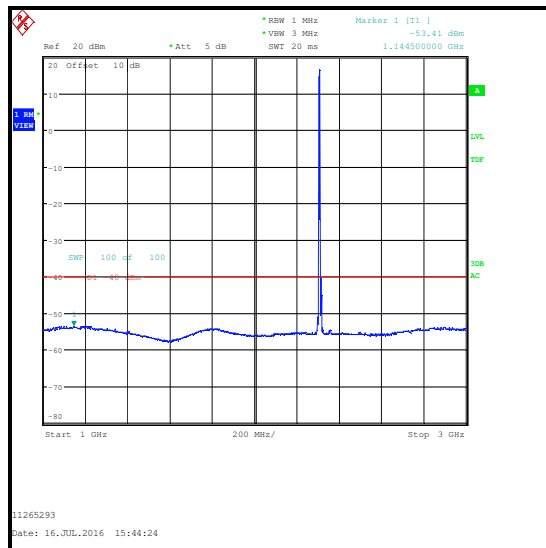
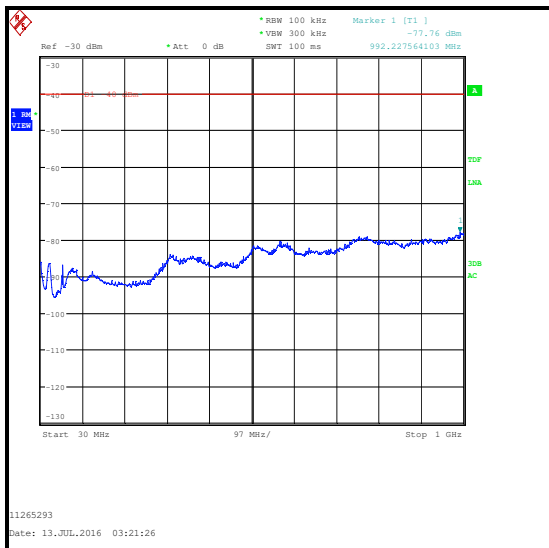
Temperature (°C):	25 to 26
Relative Humidity (%):	42 to 46

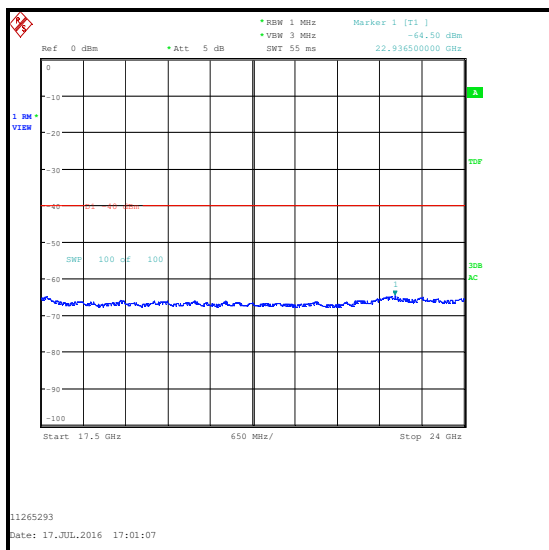
Note(s):

1. The EUT was set to transmit with a 10 MHz channel bandwidth with QPSK modulation applied and 1 resource block with 0 offset, as this was found to be the worst case modulation scheme with regards to emissions after preliminary investigations and was therefore deemed to be the worst case.
2. The emission seen on the 1 GHz to 3 GHz plot at approximately 2310 MHz is the EUT carrier.
3. No spurious emissions were detected above the measurement system noise floor therefore the highest peak noise floor reading of the measuring receiver was recorded in the table below.
4. Middle channel results are recorded in this report and are representative of bottom and top channel results which are held on the UL IT server and available for inspection on request.
5. Pre-scan measurements below 1 GHz are performed on separate plots with different transducer factors for vertical and horizontal polarisation. The pre-scan plot for 30 MHz to 1 GHz in this test report is for vertical only. All other plots are stored on the company server and are available if required.
6. Measurements below 1 GHz were performed in a semi-anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
7. Pre-scans above 1 GHz were performed in a fully anechoic chamber (Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT.
8. Radiated spurious emission testing between 150 kHz and 30 MHz was performed for support of the NFC test report. No spurious emissions were observed above the noise floor of the measurement system.

Results: Middle Channel

Frequency (MHz)	Peak Level (dBm)	Limit (dBm)	Margin (dB)	Result
17493.000	-47.9	-40.0	7.9	Complied

Transmitter Radiated Spurious Emissions – UAT (continued)

Transmitter Out of Band Radiated Emissions – UAT (continued)**Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M2003	Thermohygrometer	Testo	608-H1	45046641	22 Apr 2017	12
K0017	3m RSE Chamber	Rainford EMC	N/A	N/A	17 May 2017	12
M1995	Test Receiver	Rohde & Schwarz	ESU40	100428	21 Mar 2017	12
A2888	Antenna	Schwarzbeck	VULB 9163	9163-941	07 Apr 2017	12
A2889	Antenna	Schwarzbeck	BBHA 9120 B	BBHA 9120 B 653	07 Apr 2017	12
A2890	Antenna	Schwarzbeck	HWRD 750	014	06 May 2017	12
A2892	Antenna	Schwarzbeck	BBHA 9170	9170-727	07 Apr 2017	12
A2863	Pre-Amplifier	Agilent	8449B	3008A02100	07 Jan 2017	12
A2891	Pre-Amplifier	Schwarzbeck	BBV 9718	9718-306	07 Apr 2017	12
A2893	Pre-Amplifier	Schwarzbeck	BBV 9721	9721-021	07 Apr 2017	12
S0582	Power Supply	Schwarzbeck	PS9721	00005	Calibrated before use	-
A2916	10dB Attenuator	AtlanTecRF	AN18W5-10	832827#1	19 May 2017	12
A2914	High Pass Filter	AtlanTecRF	AFH-03000	2155	19 May 2017	12
A2947	High Pass Filter	AtlanTecRF	AFH-07000	1601900001	01 Jun 2017	12

5.2.8. Transmitter Radiated Emissions at Band Edges - LAT**Test Summary:**

Test Engineer:	Andrew Edwards	Test Date:	19 July 2016
Test Sample IMEI:	358640070286456		

FCC Reference:	Parts 2.1053 & 27.53(a)(4)
Test Method Used:	KDB 971168 Section 6.1 referencing FCC Part 27.53

Environmental Conditions:

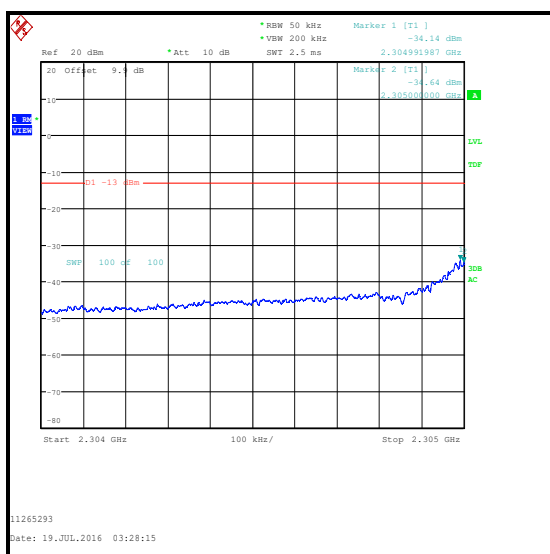
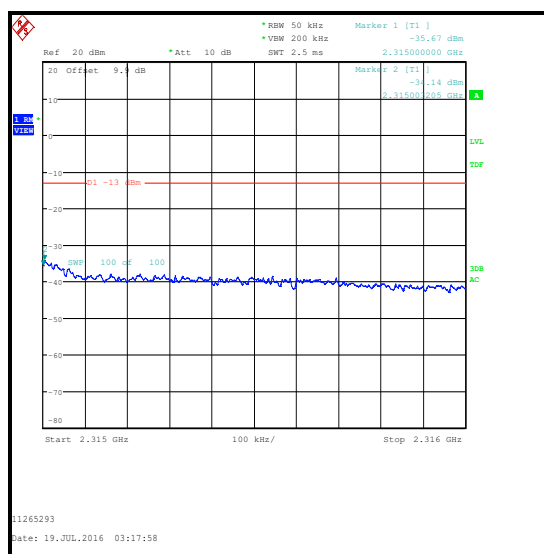
Temperature (°C):	26
Relative Humidity (%):	38

Note(s):

1. Measurements were performed with the EUT transmitting with QPSK and 16QAM modulation schemes, with the resource blocks settings as detailed in section 4.3 of this report.
2. Measurements were performed in a fully anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. The measurement antenna was placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT.
3. 5 MHz Channel bandwidth: In the first 1.0 MHz immediately outside and adjacent to the operating band, the test receiver resolution bandwidth was set to 50 kHz (>1% of the emission bandwidth) and video bandwidth of 200 kHz (as close to > three times the resolution bandwidth as the test receiver allowed).
4. 10 MHz Channel bandwidth: In the first 1.0 MHz immediately outside and adjacent to the operating band, the test receiver resolution bandwidth was set to 100 kHz (>1% of the emission bandwidth) and video bandwidth of 300 kHz (three times the resolution bandwidth).

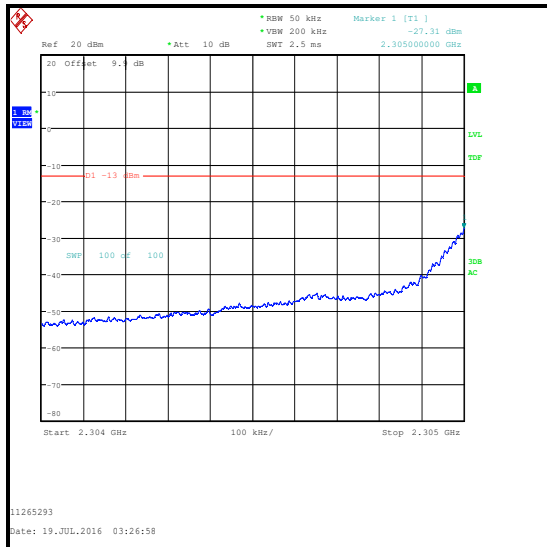
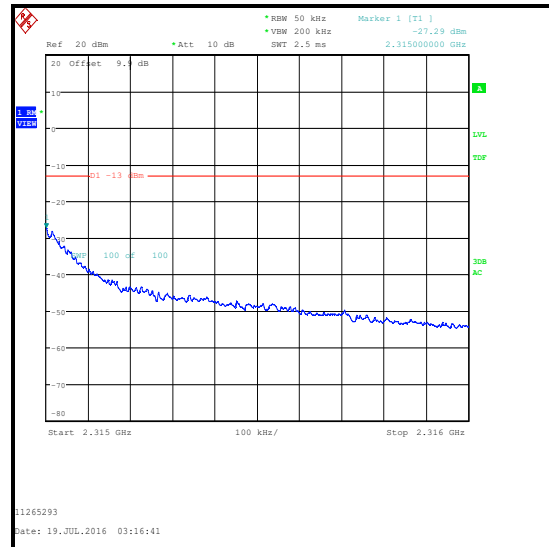
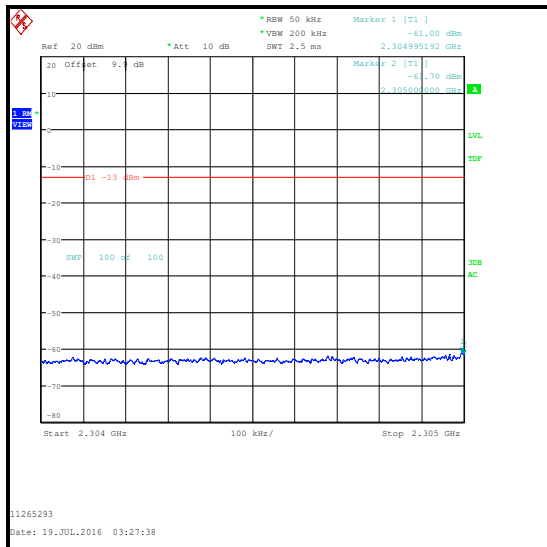
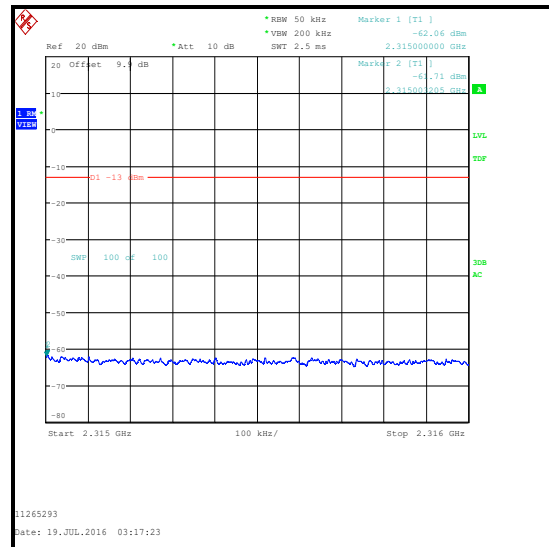
Transmitter Radiated Emissions at Band Edges (continued)**Results: 5 MHz Channel Bandwidth / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2304.992	25	0	-34.1	-13.0	21.1	Complied
2305	25	0	-34.6	-13.0	21.6	Complied
2315	25	0	-35.7	-13.0	22.7	Complied
2315.003	25	0	-34.1	-13.0	21.4	Complied

**QPSK / Lower Band Edge****QPSK / Upper Band Edge**

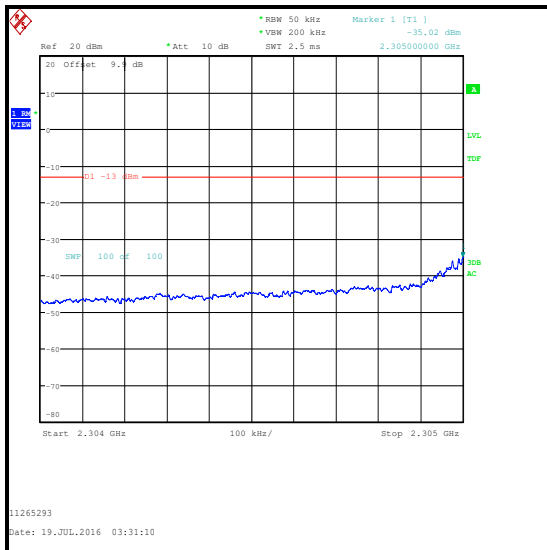
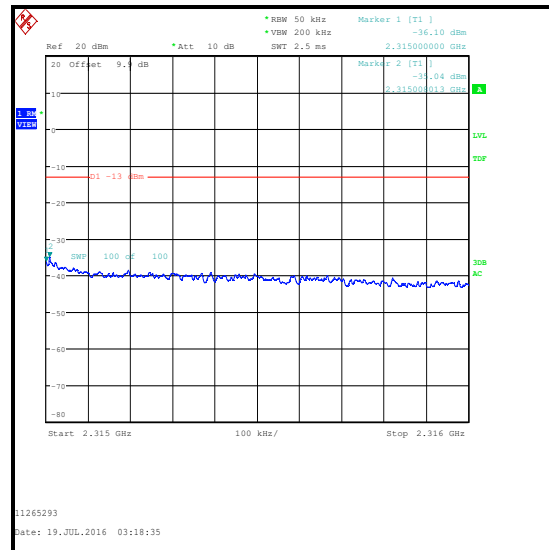
Transmitter Radiated Emissions at Band Edges (continued)**Results: 5 MHz Channel Bandwidth / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2305	1	0	-27.3	-13.0	14.3	Complied
2315	1	24	-27.3	-13.0	14.3	Complied
2305	1	24	-61.7	-13.0	48.7	Complied
2315	1	0	-62.1	-13.0	49.1	Complied

**QPSK / 1 RB 0 Offset / Lower Band Edge****QPSK / 1 RB 24 Offset / Upper Band Edge****QPSK / 1 RB 24 Offset / Lower Band Edge****QPSK / 1 RB 0 Offset / Upper Band Edge**

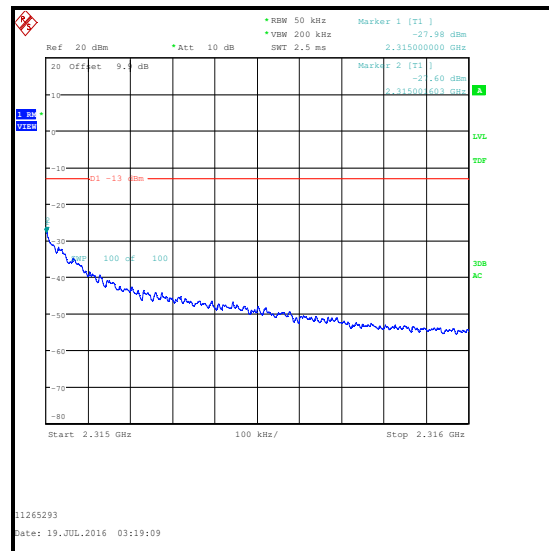
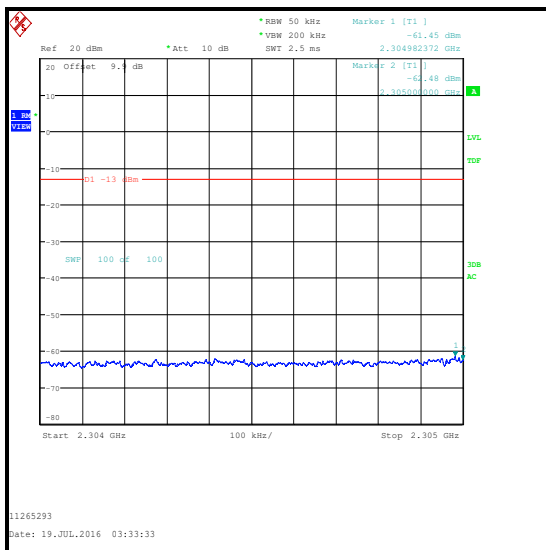
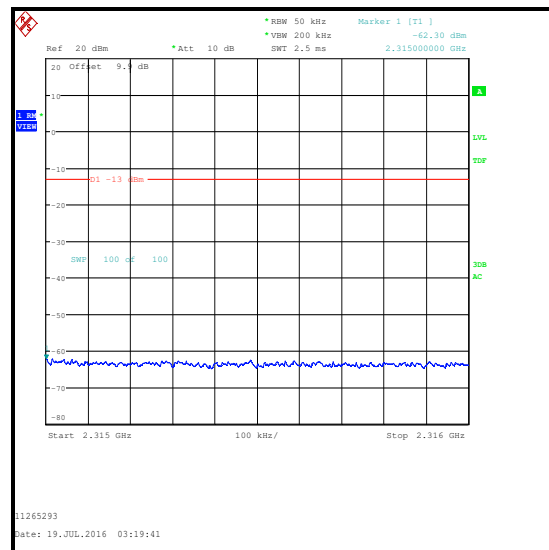
Transmitter Radiated Emissions at Band Edges (continued)**Results: 5 MHz Channel Bandwidth / 16QAM**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2305	25	0	-35.0	-13.0	22.0	Complied
2315	25	0	-36.1	-13.0	23.1	Complied
2315.008	25	0	-35.0	-13.0	22.0	Complied

**16QAM / Lower Band Edge****16QAM / Upper Band Edge**

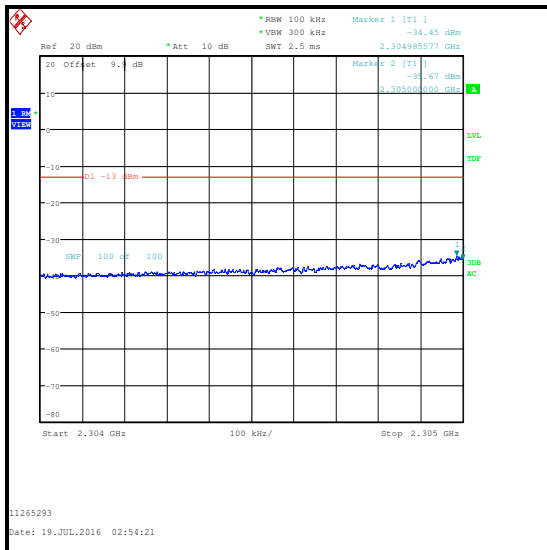
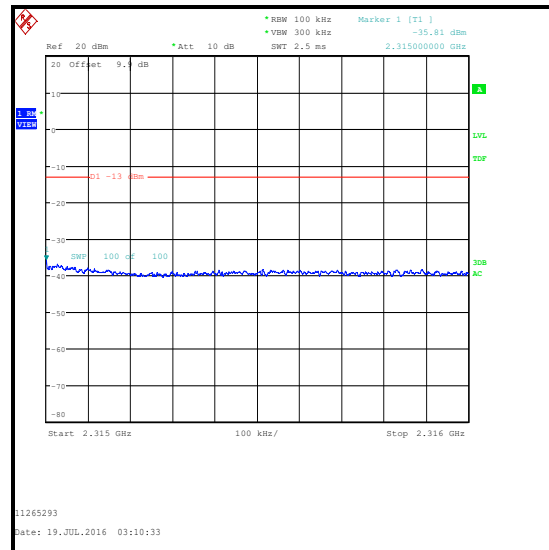
Transmitter Radiated Emissions at Band Edges (continued)**Results: 5 MHz Channel Bandwidth / 16QAM**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2305	1	0	-27.6	-13.0	14.6	Complied
2315	1	24	-28.0	-13.0	15.0	Complied
2315.002	1	24	-27.6	-13.0	14.6	Complied
2305	1	24	-62.5	-13.0	49.5	Complied
2315	1	0	-62.3	-13.0	49.3	Complied

**16QAM / 1 RB 0 Offset / Lower Band Edge****16QAM / 1 RB 24 Offset / Upper Band Edge****16QAM / 1 RB 24 Offset / Lower Band Edge****16QAM / 1 RB 0 Offset / Upper Band Edge**

Transmitter Radiated Emissions at Band Edges (continued)**Results: 10 MHz Channel Bandwidth / QPSK**

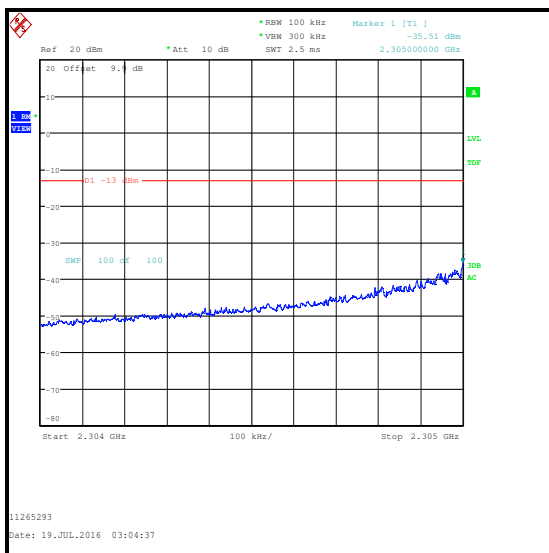
Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2304.986	50	0	-34.4	-13.0	21.4	Complied
2305	50	0	-35.7	-13.0	22.7	Complied
2315	50	0	-35.8	-13.0	22.8	Complied

**QPSK / Lower Band Edge****QPSK / Upper Band Edge**

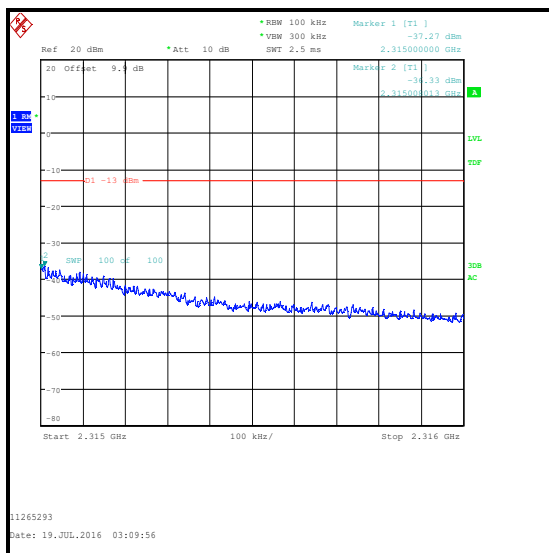
Transmitter Radiated Emissions at Band Edges (continued)

Results: 10 MHz Channel Bandwidth / QPSK

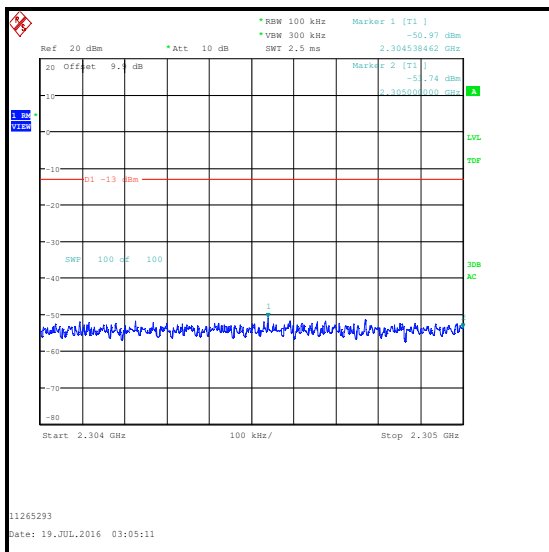
Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2305	1	0	-35.6	-13.0	22.6	Complied
2315	1	49	-37.3	-13.0	24.3	Complied
2315.008	1	49	-36.3	-13.0	23.3	Complied
2305	1	49	-53.7	-13.0	40.7	Complied
2315	1	0	-59.4	-13.0	46.4	Complied



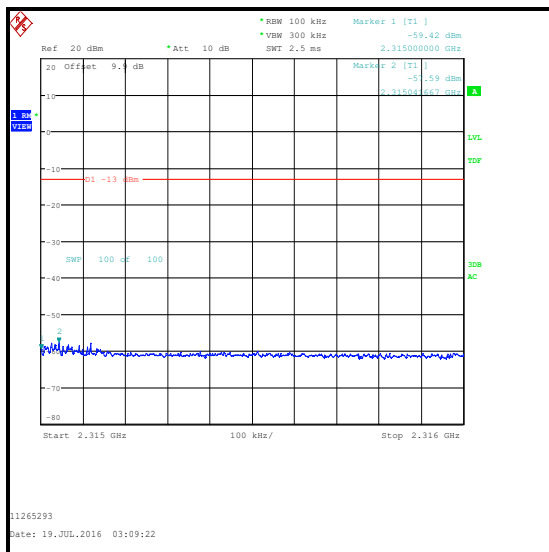
QPSK / 1 RB 0 Offset / Lower Band Edge



QPSK / 1 RB 49 Offset / Upper Band Edge

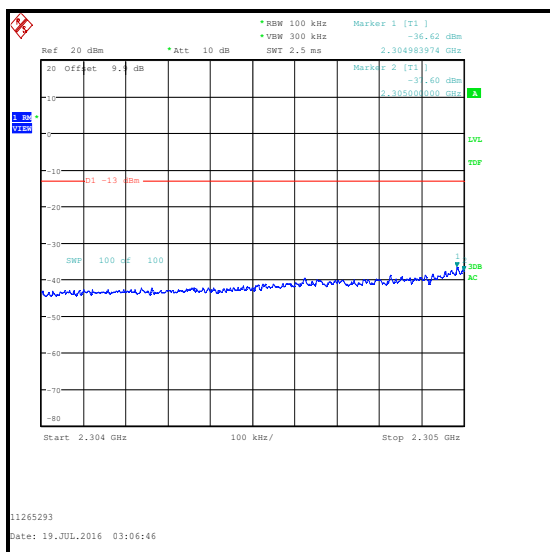
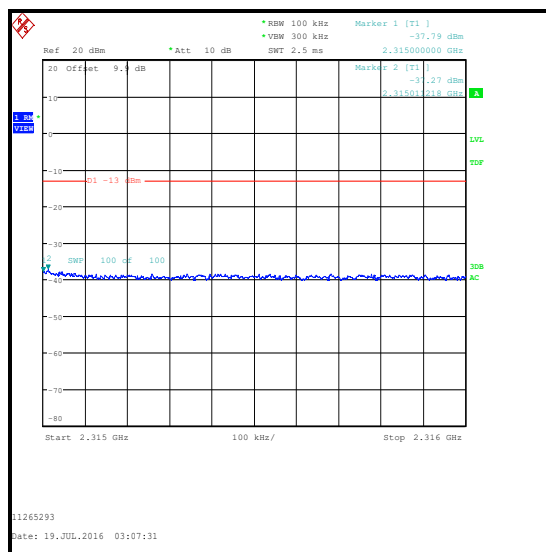


QPSK / 1 RB 49 Offset / Lower Band Edge

**QPSK / 1 RB 0 Offset / Upper Band Edge**

Transmitter Radiated Emissions at Band Edges (continued)**Results: 10 MHz Channel Bandwidth / 16QAM**

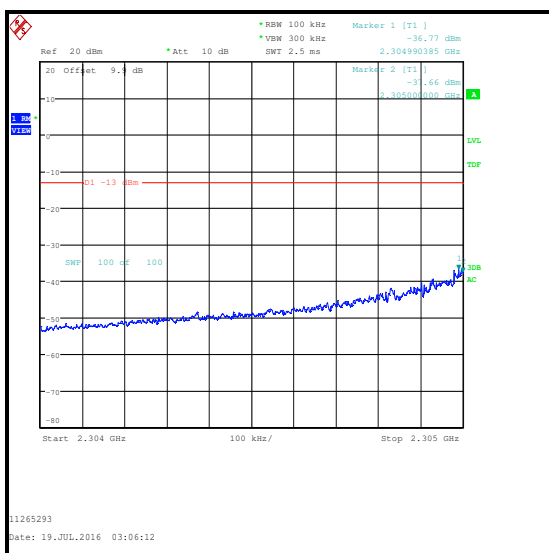
Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2304.984	50	0	-36.6	-13.0	23.6	Complied
2305	50	0	-37.6	-13.0	24.6	Complied
2315	50	0	-37.8	-13.0	24.8	Complied
2315.011	50	0	-37.3	-13.0	24.3	Complied

**16QAM / Lower Band Edge****16QAM / Upper Band Edge**

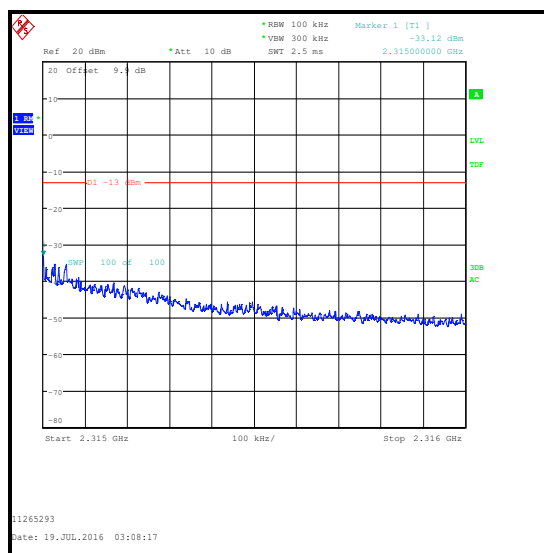
Transmitter Radiated Emissions at Band Edges (continued)

Results: 10 MHz Channel Bandwidth / 16QAM

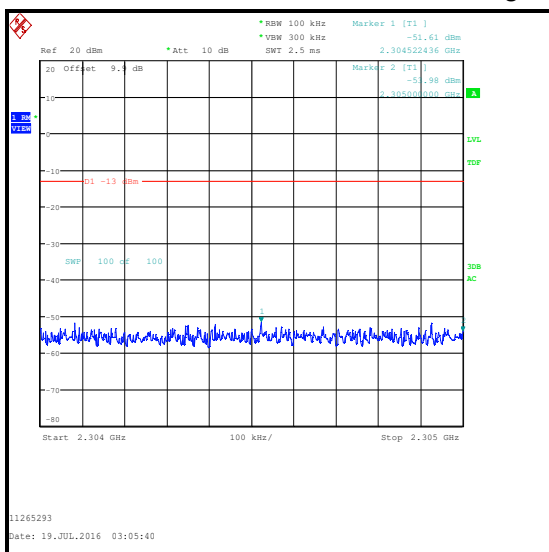
Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2304.990	1	0	-36.8	-13.0	23.8	Complied
2305	1	0	-37.7	-13.0	24.7	Complied
2315	1	49	-33.1	-13.0	20.3	Complied
2305	1	49	-54.0	-13.0	41.0	Complied
2315	1	0	-60.2	-13.0	47.2	Complied



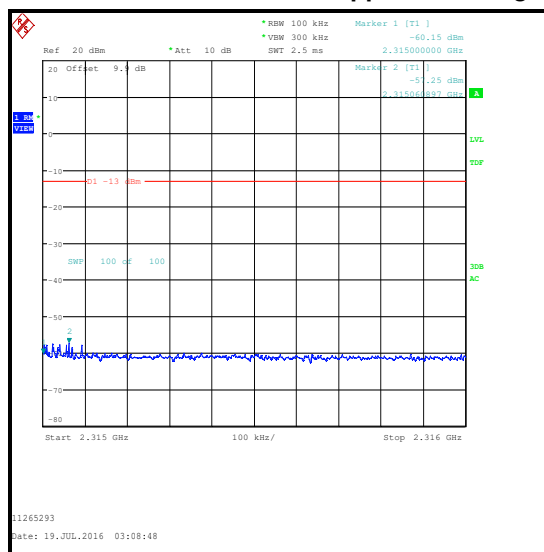
16QAM / 1 RB 0 Offset / Lower Band Edge



16QAM / 1 RB 49 Offset / Upper Band Edge



16QAM / 1 RB 49 Offset / Lower Band Edge



16QAM / 1 RB 0 Offset / Upper Band Edge

Transmitter Radiated Emissions at Band Edges (continued)**Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M2003	Thermohygrometer	Testo	608-H1	45046641	22 Apr 2017	12
K0017	3m RSE Chamber	Rainford EMC	N/A	N/A	17 May 2017	12
M1995	Test Receiver	Rohde & Schwarz	ESU40	100428	21 Mar 2017	12
A2863	Pre-Amplifier	Agilent	8449B	3008A02100	07 Jan 2017	12
A2889	Antenna	Schwarzbeck	BBHA 9120 B	BBHA 9120 B 653	07 Apr 2017	12
A2916	Attenuator	AtlanTecRF	AN18W5-10	832827#1	19 May 2017	12

5.2.9. Transmitter Radiated Emissions at Band Edges - UAT**Test Summary:**

Test Engineer:	Andrew Edwards	Test Date:	19 July 2016
Test Sample IMEI:	358640070309175		

FCC Reference:	Parts 2.1053 & 27.53(a)(4)
Test Method Used:	KDB 971168 Section 6.1 referencing FCC Part 27.53

Environmental Conditions:

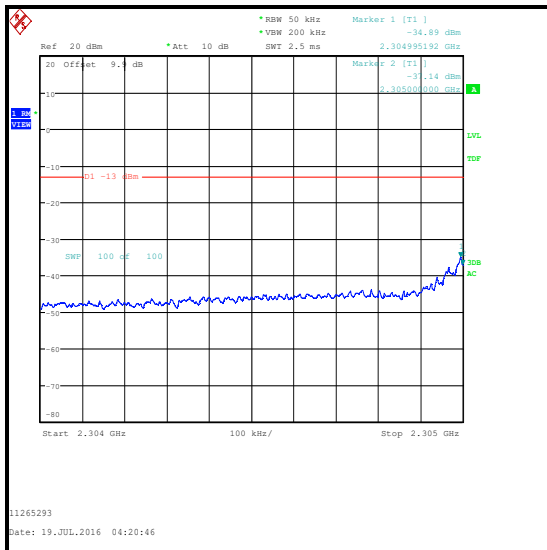
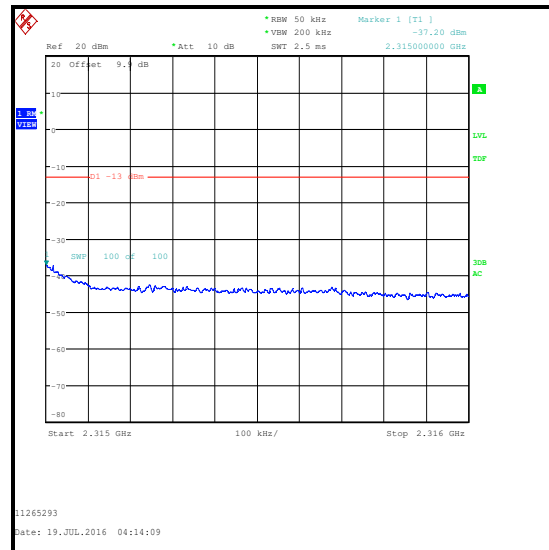
Temperature (°C):	26
Relative Humidity (%):	39

Note(s):

1. Measurements were performed with the EUT transmitting with QPSK and 16QAM modulation schemes, with the resource blocks settings as detailed in section 4.3 of this report.
2. Measurements were performed in a fully anechoic chamber (Asset Number K0017) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. The measurement antenna was placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT.
3. 5 MHz Channel bandwidth: In the first 1.0 MHz immediately outside and adjacent to the operating band, the test receiver resolution bandwidth was set to 50 kHz (>1% of the emission bandwidth) and video bandwidth of 200 kHz (as close to > three times the resolution bandwidth as the test receiver allowed).
4. 10 MHz Channel bandwidth: In the first 1.0 MHz immediately outside and adjacent to the operating band, the test receiver resolution bandwidth was set to 100 kHz (>1% of the emission bandwidth) and video bandwidth of 300 kHz (three times the resolution bandwidth).

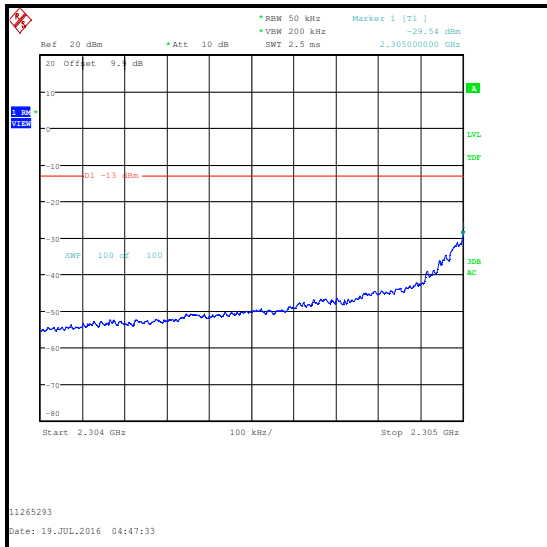
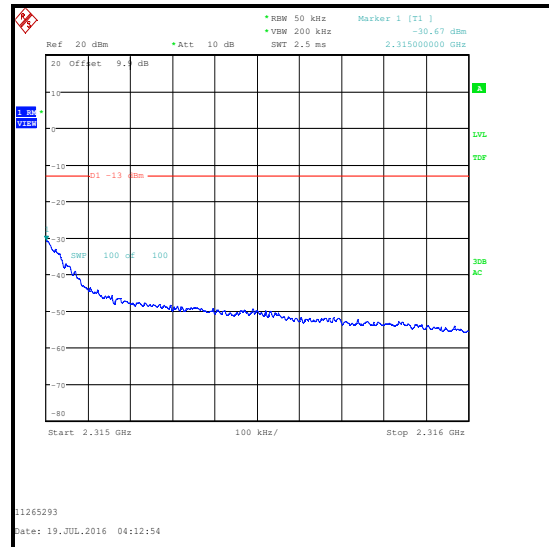
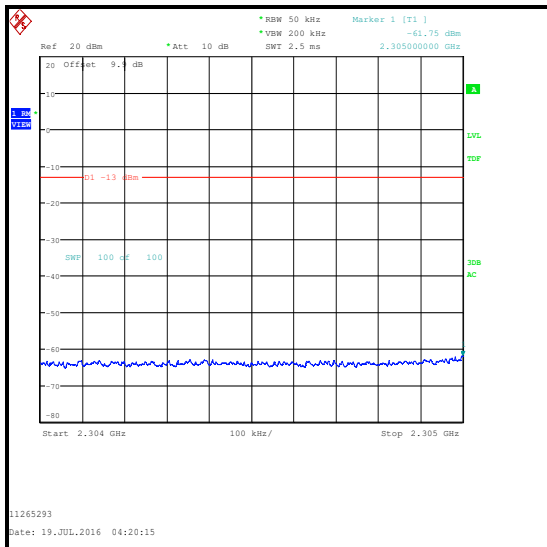
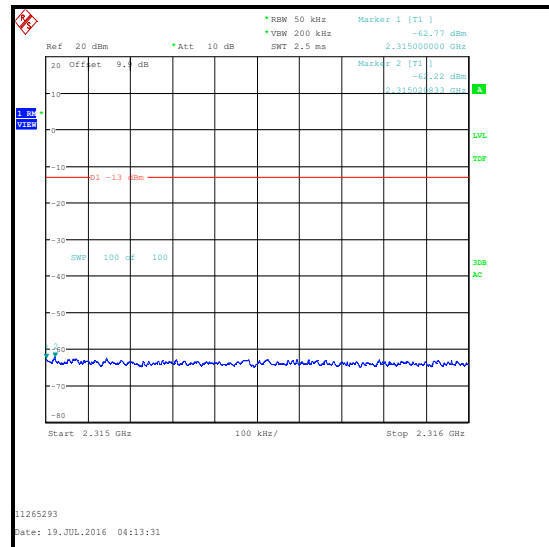
Transmitter Radiated Emissions at Band Edges (continued)**Results: 5 MHz Channel Bandwidth / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2304.995	25	0	-34.9	-13.0	21.9	Complied
2305	25	0	-37.1	-13.0	24.1	Complied
2315	25	0	-37.2	-13.0	24.2	Complied

**QPSK / Lower Band Edge****QPSK / Upper Band Edge**

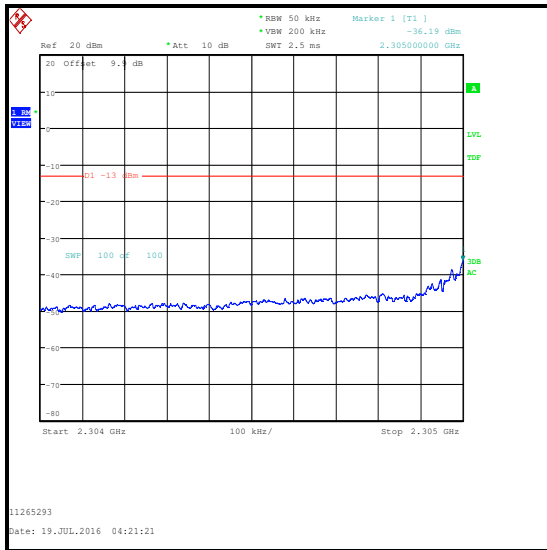
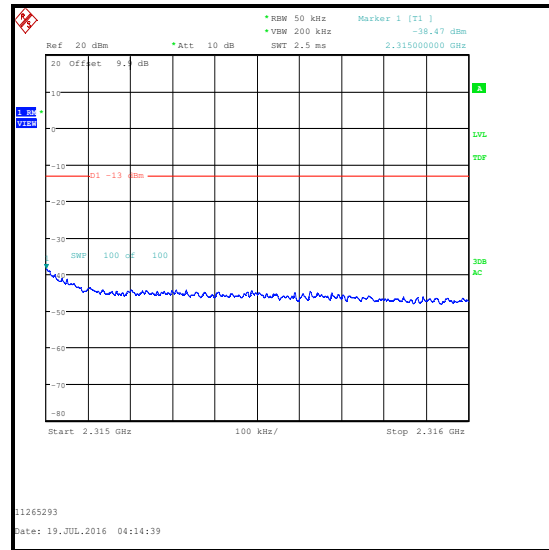
Transmitter Radiated Emissions at Band Edges (continued)**Results: 5 MHz Channel Bandwidth / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2305	1	0	-29.5	-13.0	16.5	Complied
2315	1	24	-30.7	-13.0	17.7	Complied
2305	1	24	-61.8	-13.0	48.8	Complied
2315	1	0	-62.8	-13.0	49.8	Complied

**QPSK / 1 RB 0 Offset / Lower Band Edge****QPSK / 1 RB 24 Offset / Upper Band Edge****QPSK / 1 RB 24 Offset / Lower Band Edge****QPSK / 1 RB 0 Offset / Upper Band Edge**

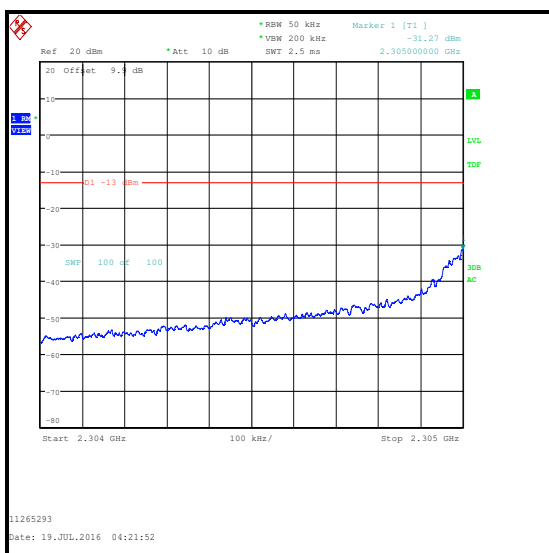
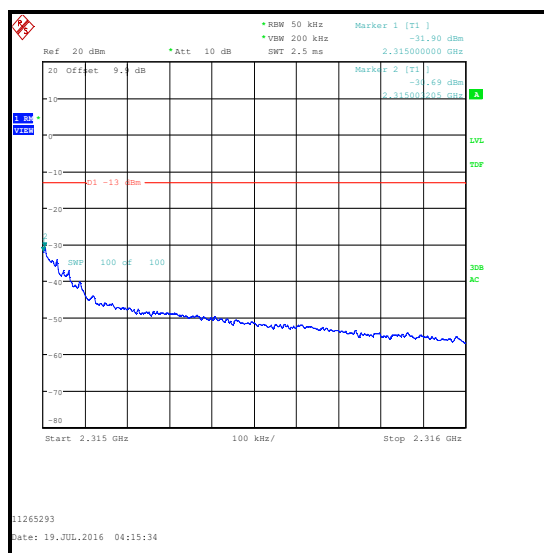
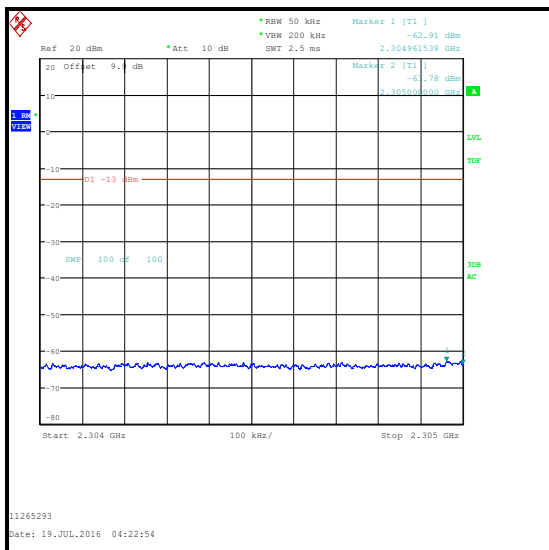
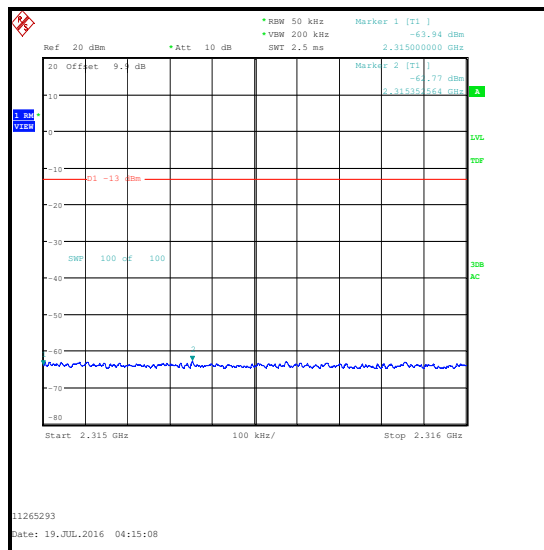
Transmitter Radiated Emissions at Band Edges (continued)**Results: 5 MHz Channel Bandwidth / 16QAM**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2305	25	0	-36.2	-13.0	23.2	Complied
2315	25	0	-38.5	-13.0	25.5	Complied

**16QAM / Lower Band Edge****16QAM / Upper Band Edge**

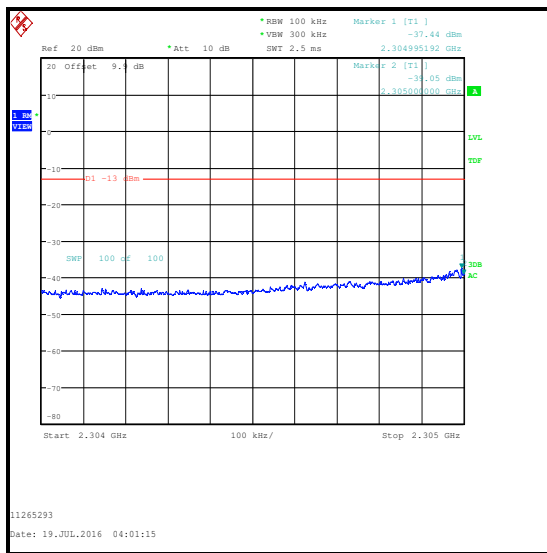
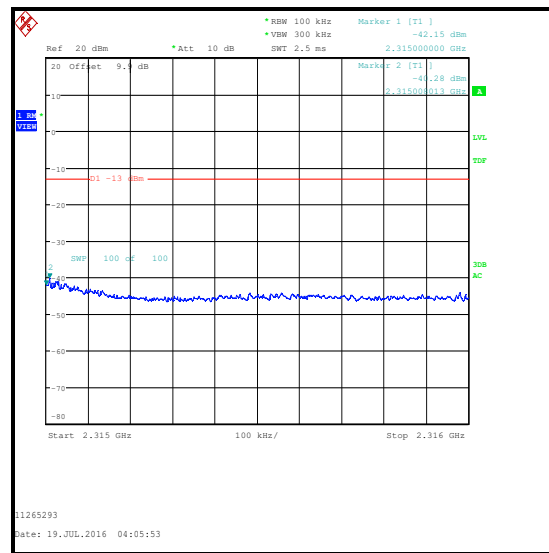
Transmitter Radiated Emissions at Band Edges (continued)**Results: 5 MHz Channel Bandwidth / 16QAM**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2305	1	0	-31.3	-13.0	18.3	Complied
2315	1	24	-31.9	-13.0	18.9	Complied
2315.003	1	24	-30.7	-13.0	17.7	Complied
2305	1	24	-63.8	-13.0	50.8	Complied
2315	1	0	-63.9	-13.0	50.9	Complied

**16QAM / 1 RB 0 Offset / Lower Band Edge****16QAM / 1 RB 24 Offset / Upper Band Edge****16QAM / 1 RB 24 Offset / Lower Band Edge****16QAM / 1 RB 0 Offset / Upper Band Edge**

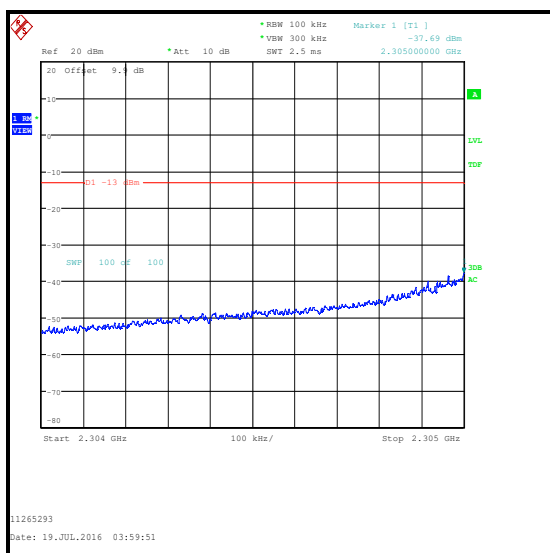
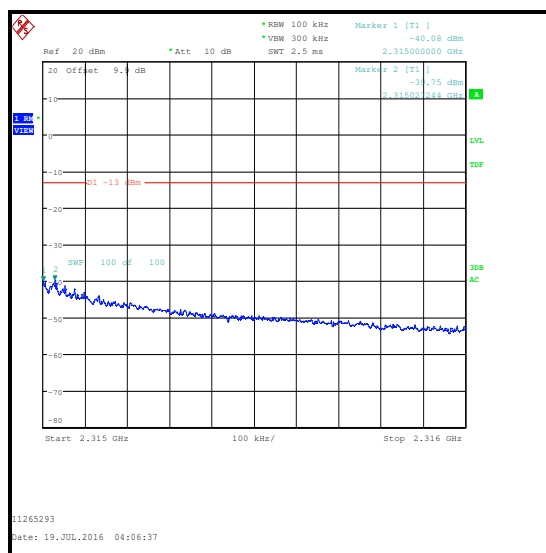
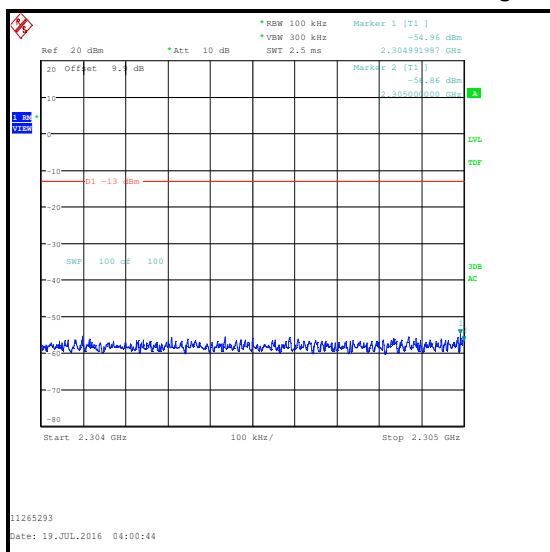
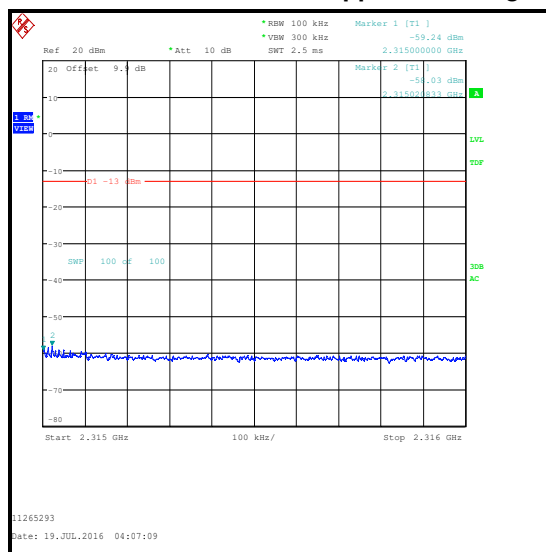
Transmitter Radiated Emissions at Band Edges (continued)**Results: 10 MHz Channel Bandwidth / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2304.995	50	0	-37.4	-13.0	24.4	Complied
2305	50	0	-39.1	-13.0	26.1	Complied
2315	50	0	-42.2	-13.0	29.2	Complied
2315.008	50	0	-40.3	-13.0	27.3	Complied

**QPSK / Lower Band Edge****QPSK / Upper Band Edge**

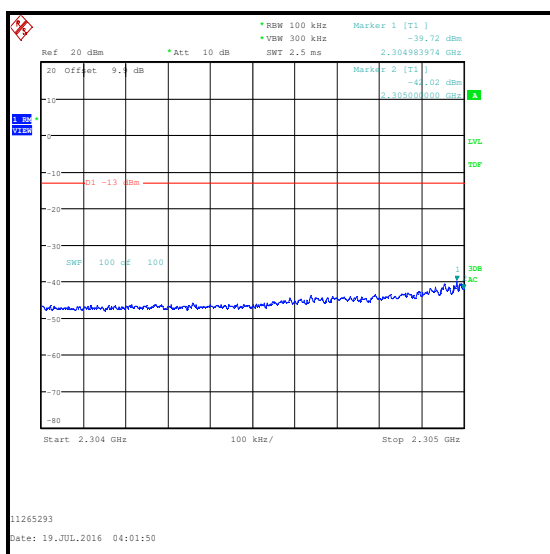
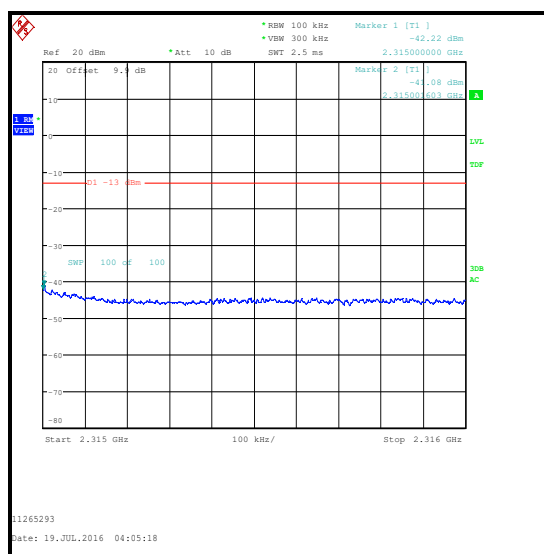
Transmitter Radiated Emissions at Band Edges (continued)**Results: 10 MHz Channel Bandwidth / QPSK**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2305	1	0	-37.7	-13.0	24.7	Complied
2315	1	49	-40.1	-13.0	27.1	Complied
2315.027	1	49	-39.8	-13.0	26.8	Complied
2305	1	49	-56.9	-13.0	43.9	Complied
2315	1	0	-59.2	-13.0	46.2	Complied

**QPSK / 1 RB 0 Offset / Lower Band Edge****QPSK / 1 RB 49 Offset / Upper Band Edge****QPSK / 1 RB 49 Offset / Lower Band Edge****QPSK / 1 RB 0 Offset / Upper Band Edge**

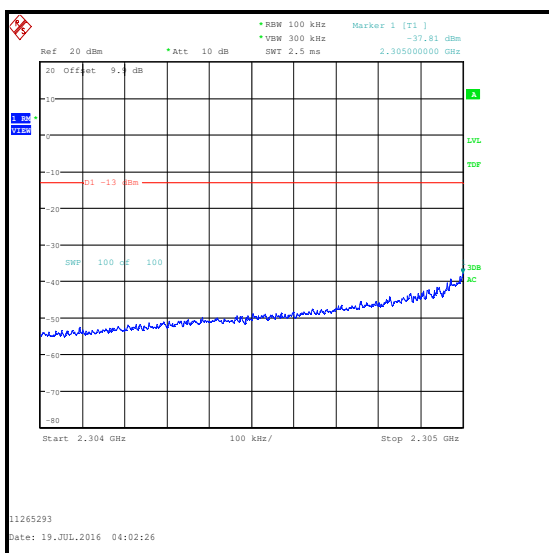
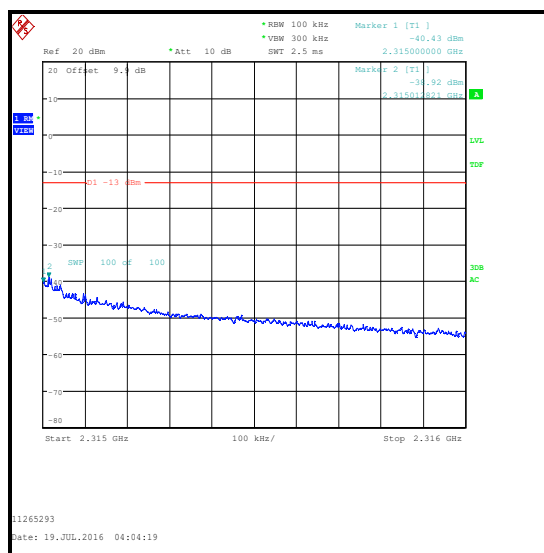
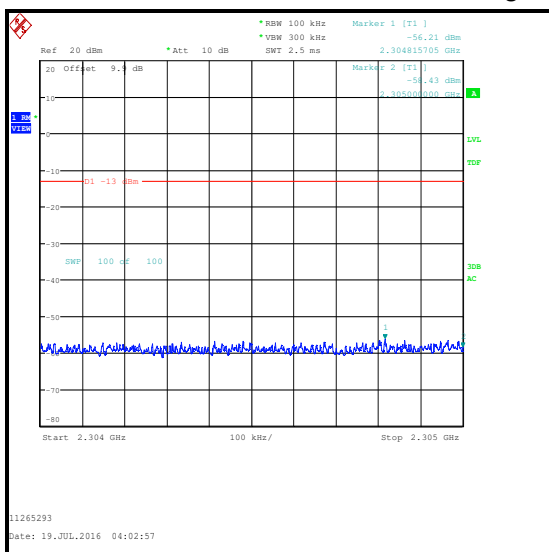
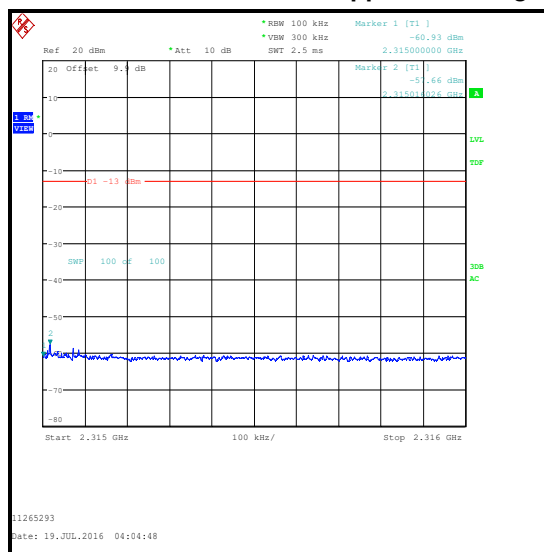
Transmitter Radiated Emissions at Band Edges (continued)**Results: 10 MHz Channel Bandwidth / 16QAM**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2304.984	50	0	-39.7	-13.0	26.7	Complied
2305	50	0	-42.0	-13.0	29.0	Complied
2315	50	0	-42.2	-13.0	29.2	Complied
2315.002	50	0	-41.1	-13.0	28.1	Complied

**16QAM / Lower Band Edge****16QAM / Upper Band Edge**

Transmitter Radiated Emissions at Band Edges (continued)**Results: 10 MHz Channel Bandwidth / 16QAM**

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Result
2305	1	0	-37.8	-13.0	24.8	Complied
2315	1	49	-40.4	-13.0	27.4	Complied
2315.128	1	49	-38.9	-13.0	25.9	Complied
2305	1	49	-58.4	-13.0	45.4	Complied
2315	1	0	-60.9	-13.0	47.9	Complied

**16QAM / 1 RB 0 Offset / Lower Band Edge****16QAM / 1 RB 49 Offset / Upper Band Edge****16QAM / 1 RB 49 Offset / Lower Band Edge****16QAM / 1 RB 0 Offset / Upper Band Edge**

Transmitter Radiated Emissions at Band Edges (continued)**Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M2003	Thermohygrometer	Testo	608-H1	45046641	22 Apr 2017	12
K0017	3m RSE Chamber	Rainford EMC	N/A	N/A	17 May 2017	12
M1995	Test Receiver	Rohde & Schwarz	ESU40	100428	21 Mar 2017	12
A2863	Pre-Amplifier	Agilent	8449B	3008A02100	07 Jan 2017	12
A2889	Antenna	Schwarzbeck	BBHA 9120 B	BBHA 9120 B 653	07 Apr 2017	12
A2916	Attenuator	AtlanTecRF	AN18W5-10	832827#1	19 May 2017	12

5.2.10. Transmitter Frequency Stability (Temperature Variation)**Test Summary:**

Test Engineer:	Stefan Ho	Test Dates:	03 June 2016 & 09 June 2016
Test Sample IMEI:	358640070266615		

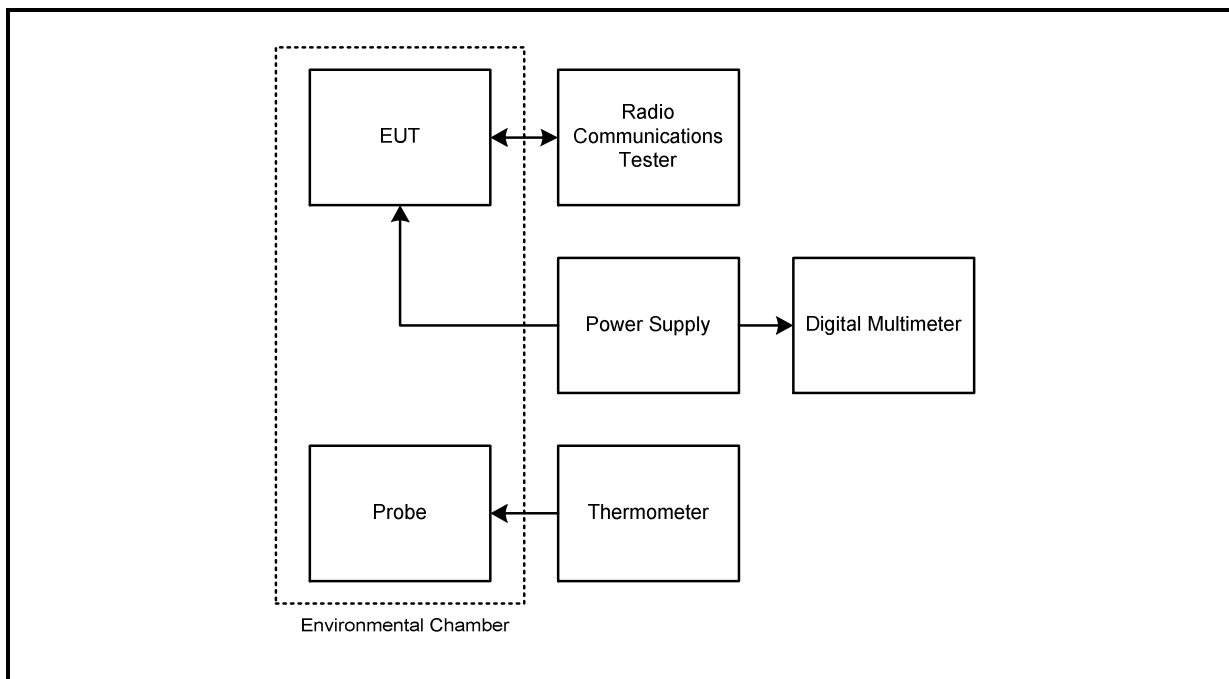
FCC Reference:	Parts 2.1055 & 27.54
Test Method Used:	KDB 971168 Section 9.0 referencing ANSI TIA-603-D-2010 Section 2.2.2 and FCC Part 2.1055

Environmental Conditions:

Ambient Temperature (°C):	23
Ambient Relative Humidity (%):	46 to 48

Note(s):

1. Flying leads were connected internally to the EUT in place of the battery. These leads extended and connected to a bench power supply at the nominal voltage of 3.8 V.
2. Frequency error was measured using a calibrated Rohde and Schwarz CMW 500 Universal Radio Communications Tester in accordance with current Rohde and Schwarz application notes. The EUT was connected by suitable RF cables to the CMW 500. A bi-directional communications link was established between the EUT and CMW 500. The frequency meter value was recorded.
3. Temperature was monitored throughout the test with a calibrated digital thermometer.

Test setup:

Transmitter Frequency Stability (Temperature Variation) (continued)**Results: Bottom Channel (2307.5 MHz)**

Temperature (°C)	Frequency Error (Hz)	Measured Frequency (MHz)	Lower Band Edge Limit (MHz)	Margin (MHz)	Result
-30	9	2307.500009	2305	2.500009	Complied
-20	10	2307.500010	2305	2.500010	Complied
-10	10	2307.500010	2305	2.500010	Complied
0	8	2307.500008	2305	2.500008	Complied
10	9	2307.500009	2305	2.500009	Complied
20	8	2307.500008	2305	2.500008	Complied
30	9	2307.500009	2305	2.500009	Complied
40	8	2307.500008	2305	2.500008	Complied
50	13	2307.500013	2305	2.500013	Complied

Results: Top Channel (2312.5 MHz)

Temperature (°C)	Frequency Error (Hz)	Measured Frequency (MHz)	Upper Band Edge Limit (MHz)	Margin (MHz)	Result
-30	7	2312.500007	2315	2.499993	Complied
-20	7	2312.500007	2315	2.499993	Complied
-10	8	2312.500008	2315	2.499992	Complied
0	9	2312.500009	2315	2.499991	Complied
10	9	2312.500009	2315	2.499991	Complied
20	8	2312.499992	2315	2.500008	Complied
30	10	2312.500010	2315	2.499990	Complied
40	7	2312.500007	2315	2.499993	Complied
50	10	2312.500010	2315	2.499990	Complied

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M2002	Thermohygrometer	Testo	608-H1	45041825	02 Apr 2017	12
M1869	Wideband Radio Comms Tester	Rohde & Schwarz	CMW 500	145923	05 Apr 2017	12
M1815	Environmental Chamber	Votsch/Heraeus	VT4002	521/83083	Calibrated before use	-
M1642	Thermometer	Fluke	52II	18890119	25 Apr 2017	12
S021	DC power supply	TTI	CPX200	061034	Calibrated before use	-
M1269	Multimeter	Fluke	179	90250210	13 May 2017	12

5.2.11. Transmitter Frequency Stability (Voltage Variation)**Test Summary:**

Test Engineer:	Stefan Ho	Test Date:	02 June 2016
Test Sample IMEI:	358640070266615		

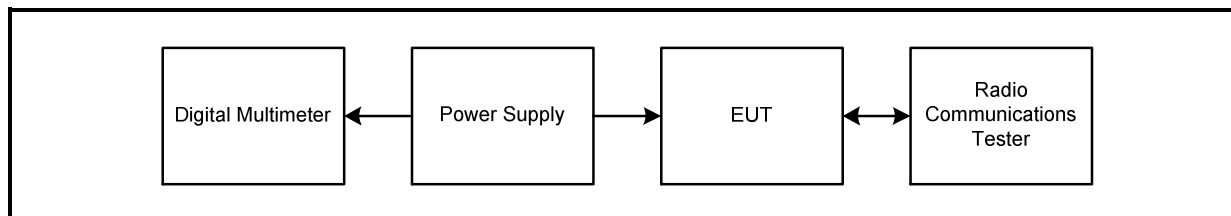
FCC Reference:	Parts 2.1055 & 27.54
Test Method Used:	KDB 971168 Section 9.0 referencing ANSI TIA-603-D-2010 Section 2.2.2 and FCC Part 2.1055

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	48

Note(s):

1. Flying leads were connected internally to the EUT in place of the battery. These leads extended and connected to a bench power supply.
2. Frequency error was measured using a calibrated Rohde and Schwarz CMW 500 Universal Radio Communications Tester in accordance with current Rohde and Schwarz application notes. The EUT was connected by suitable RF cables to the CMW 500. A bi-directional communications link was established between the EUT and CMW 500. The frequency meter value was recorded.
3. Voltage was monitored throughout the test with a calibrated digital voltmeter.

Test setup:

Transmitter Frequency Stability (Voltage Variation) (continued)**Results: Bottom Channel (2307.5 MHz)**

Supply Voltage (V)	Frequency Error (Hz)	Measured Frequency (MHz)	Lower Band Edge Limit (MHz)	Margin (MHz)	Result
3.4	9	2307.500009	2305	2.500009	Complied
4.2	8	2307.500008	2305	2.500008	Complied

Results: Top Channel (2312.5 MHz)

Supply Voltage (V)	Frequency Error (Hz)	Measured Frequency (MHz)	Upper Band Edge Limit (MHz)	Margin (MHz)	Result
3.4	7	2312.500007	2315	2.499993	Complied
4.2	8	2312.499992	2315	2.500008	Complied

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M2002	Thermohygrometer	Testo	608-H1	45041825	02 Apr 2017	12
M1869	Wideband Radio Comms Tester	Rohde & Schwarz	CMW 500	145923	05 Apr 2017	12
S021	DC power supply	TTI	CPX200	061034	Calibrated before use	-
M1269	Multimeter	Fluke	179	90250210	13 May 2017	12

6. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document "approximately" is interpreted as meaning "effectively" or "for most practical purposes".

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
Conducted Output Power	2305 to 2315 MHz	95%	± 1.13 dB
Frequency Stability	2305 to 2315 MHz	95%	± 23 Hz
Occupied Bandwidth	2305 to 2315 MHz	95%	± 3.92 %
Conducted Spurious Emissions	2305 to 2315 MHz	95%	± 2.62 dB
Radiated Spurious Emissions	30 MHz to 1 GHz	95%	± 5.65 dB
Radiated Spurious Emissions	1 GHz to 24 GHz	95%	± 2.94 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

7. Report Revision History

Version Number	Revision Details		
	Page No(s)	Clause	Details
1.0	-	-	Initial Version
2.0	-	-	Updates as requested by the TCB
3.0	-	-	Updates as requested by the TCB

--- END OF REPORT ---