TEST REPORT

Test Report No. : UL-RPT-RP11265293JD07P V2.0

Manufacturer	:	Apple Inc.
Model No.	:	A1785
FCC ID	:	BCG-E3088A
Technology	:	LTE – Band 2
Test Standard(s)	:	FCC Part 24 Subpart E

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2. The results in this report apply only to the sample(s) tested.
3. The sample tested is in compliance with the above standard(s).
4. The test results in this report are traceable to the national or international standards.
5. Version 2.0 supersedes all previous versions.

Date of Issue: 03 August 2016

Checked by:

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This laboratory is accredited by UKAS. The tests reported herein have been performed in accordance with its terms of accreditation.

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1. Customer Information

Company Name:	Apple Inc.
Address:	1 Infinite Loop Cupertino, CA 95014 U.S.A.

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR24
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 24 Subpart E (Personal Communication Services)
Site Registration:	209735
Location of Testing:	UL VS LTD, Unit 3 Horizon, Wade Road, Kingsland Business Park, Basingstoke, Hampshire, RG24 8AH, United Kingdom
Test Dates:	02 June 2016 to 23 July 2016

2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Result
Part 24.232(c)	Transmitter Output Power (EIRP)	Complied
Part 24.232(d)	Peak-to-Average Ratio (PAR)	Complied
Part 2.1049	Transmitter Occupied Bandwidth	Complied
Part 2.1053 / 24.238(a)	Transmitter Out of Band Radiated Emissions	Complied
Part 2.1053 / 24.238(a)	Transmitter Band Edge Radiated Emissions	Complied
Part 2.1055 / 24.235	Transmitter Frequency Stability (Temperature and Voltage Variation)	Complied

2.3. Methods and Procedures

Reference:	ANSI/TIA-603-D-2010
Title:	Land Mobile Communications Equipment, Measurements and performance Standards
Reference:	FCC KDB 971168 D01 v02r02, October 17 2014
Title:	Measurement Guidance for Certification of Licensed Digital Transmitters

2.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	Apple
Model Name or Number:	A1785
Test Sample Serial Number:	C39RW006HFMH
Test Sample IMEI:	358640070286456 *(Radiated LAT Sample)*
Hardware Version:	REV1.0
Software Version:	iOS: 14A22580n BB FW: 0.16.01-3
FCC ID:	BCG-E3088A

Brand Name:	Apple
Model Name or Number:	A1785
Test Sample Serial Number:	C39RW00HHFMH
Test Sample IMEI:	358640070309175 *(Radiated UAT Sample)*
Hardware Version:	REV1.0
Software Version:	iOS: 14A22580n BB FW: 0.16.01-3
FCC ID:	BCG-E3088A

Brand Name:	Apple
Model Name or Number:	A1785
Test Sample Serial Number:	C39RW013HFML
Test Sample IMEI:	358640070269106 *(Conducted Sample #1)*
Hardware Version:	REV1.0
Software Version:	iOS: 14A22580n BB FW: 0.16.01-3
FCC ID:	BCG-E3088A

Brand Name:	Apple
Model Name or Number:	A1785
Test Sample Serial Number:	C39RP002H940
Test Sample IMEI:	358640070266615 *(Conducted Sample #2)*
Hardware Version:	REV1.0
Software Version:	iOS: 14A273 BB FW: 0.21.02
FCC ID:	BCG-E3088A

3.2. Description of EUT

The Equipment Under Test was a mobile phone with GSM/GPRS/EGPRS/UMTS/LTE/TD-SCDMA and CDMA technologies. It also supports IEEE 802.11a/b/g/n/ac, Bluetooth®, GPS and NFC. The rechargeable battery is not user accessible.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Tested Technology:	LTE Band 2			
Type of Equipment	Transceiver			
Channel Bandwidth(s):	1.4, 3, 5, 10, 15 & 20 MHz			
Modulation Type:	QPSK & 16QAM			
Duty Cycle:	100%			
Antenna Type:	Integral			
Antenna Gain (LAT):	0.95 dBi			
Antenna Gain (UAT):	-0.77 dBi			
Power Supply Requirement(s):	Nominal	3.8 VDC		
	Minimum	3.5 VDC		
	Maximum	4.4 VDC		
Transmit Frequency Range:	1850 to 1910 MHz			
Channels Tested:	**Channel Bandwidth (MHz)**		**N_{ul}**	**Frequency of Uplink (MHz)**
Bottom Channel	1.4		18607	1850.7
	3		18615	1851.5
	5		18625	1852.5
	10		18650	1855.0
	15		18675	1857.5
	20		18700	1860.0
Middle Channel	All		18900	1880.0
Top Channel	1.4		19193	1909.3
	3		19185	1908.5
	5		19175	1907.5
	10		19150	1905.0
	15		19125	1902.5
	20		19100	1900.0

3.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	Laptop PC
Brand Name:	Dell
Model Name or Number:	Latitude E5410
Serial Number:	UL Asset No. 00763

Description:	USB diagnostic cable
Brand Name:	Not stated
Model Name or Number:	Kong
Serial Number:	202D5E

Description:	Personal Hands Free (PHF)
Brand Name:	Apple
Model Name or Number:	Apple Ear Plugs
Serial Number:	Not stated

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):

- Transmit Mode - The EUT was set to transmit with maximum output power using the required channel bandwidth. QPSK and 16QAM modulations were both tested, with Resource Block allocation as detailed in section 4.3.

4.2. Configuration and Peripherals

The EUT was tested in the following configuration(s):

- The EUT was placed into a non-ui mode by using the teraterm application on a UL laptop PC. Instructions were provided by the customer to enable the baseband and radio *(Cellular_RSE_setup_V3.0.doc)*. This enabled the EUT to connect via a radiated link with the Rohde & Schwarz CMW 500 system simulator operating in transceiver mode. The CMW 500 was used to configure the EUT operating mode.
- The device contains two cellular antennas which do not transmit simultaneously.
    - LAT – Lower Antenna (Primary)
    - UAT – Upper Antenna (Secondary)

  Both antennas have been tested to demonstrate compliance.
- For the LAT conducted measurements, the RF conducted port was connected with an external RF cable, supplied by the customer.
- For the UAT conducted cellular measurements, the RF conducted port was exposed and extended with a short RF cable supplied by the customer.
- Conducted measurements at temperature and voltage extremes were performed using a conducted sample supplied by the customer. Short DC flying leads were connected internally to the device in place of the battery, and exited through a hole in the casing. These leads were then extended to a DC power supply for testing purposes.
- The EUT was placed in three orthogonal orientations X, Y and Z to determine the worst case orientation for radiated spurious emissions. The worst case for LAT was X orientation (EUT positioned horizontally on its side) and UAT was Z orientation (EUT positioned on its back).
- Transmitter radiated spurious emissions tests were performed with the EUT set to transmit with a 10 MHz channel bandwidth with QPSK modulation applied and 1 resource block with 0 offset. This was found to be the worst case modulation scheme with regards to emissions after preliminary investigations and therefore it was deemed to be the worst case.
- The worst-case radiated emission among all accessories, is determined by the manufacturer to be with the headset connected. The compliance lab performed final testing only with the headset attached.
- Transmitter radiated spurious emissions tests were performed with the PHF connected to the EUT.

4.3. Resource Block Allocation

Channel Bandwidth (MHz)	Maximum No. of Resource Blocks	Resource Block / Offset Number					
		Sub Test 1		Sub Test 2		Sub Test 3	
		RB	Offset	RB	Offset	RB	Offset
1.4	6	1	0	1	5	6	0
3	15	1	0	1	14	15	0
5	25	1	0	1	24	25	0
10	50	1	0	1	49	50	0
15	75	1	0	1	74	75	0
20	100	1	0	1	99	100	0

Transmitter Occupied Bandwidth was carried out using sub test 3, for both QPSK and 16QAM modulation schemes.

Transmitter radiated spurious emissions tests were performed with the EUT set to transmit with a 10 MHz channel bandwidth with QPSK modulation applied and 1 resource block with 0 offset. This was found to be the worst case modulation scheme with regards to emissions after preliminary investigations and therefore it was deemed to be the worst case.

Transmitter Radiated Band Edge Emissions was tested with sub tests 1, 2 and 3 on all supported channel bandwidths using QPSK and 16-QAM modulations.

Transmitter Frequency Stability test was carried out with sub test 3, with a channel bandwidth of 1.4 MHz only.

5. Measurements, Examinations and Derived Results

5.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to *Section 6. Measurement Uncertainty* for details.

In accordance with UKAS requirements all the measurement equipment is on a calibration schedule. All equipment was within the calibration period on the date of testing.

5.2. Test Results

5.2.1. Transmitter Output Power (EIRP) - LAT

Test Summary:

Test Engineer:	Keith Tucker	**Test Date:**	23 July 2016
Test Sample IMEI:	358640070269106		

FCC Reference:	Part 24.232(c)
Test Method Used:	KDB 971168 Section 2.2 footnote 1, Section 5.6 & Notes below

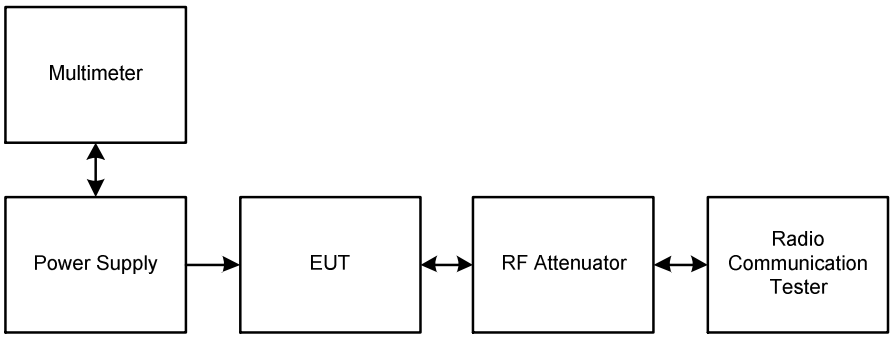
Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	47

Note(s):

1. The customer stated that the antenna gain is 0.95 dBi. The antenna gain was added to the conducted output power to obtain the EIRP.
2. Conducted average power was measured using a calibrated Rohde and Schwarz CMW 500 Wideband Radio Communication Tester.
3. The RF port of the EUT was connected to the Communication Tester via an RF cable and suitable attenuation. An RF level offset was entered on the Communication Tester to compensate for the loss of the attenuator and RF cable.

Test setup:



Transmitter Output Power (EIRP) (continued)

Results: 1.4 MHz Channel Bandwidth / Bottom Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1850.7	6	0	23.0	0.95	23.95	33.01	9.06	Complied
1850.7	3	3	24.0	0.95	24.95	33.01	8.06	Complied
1850.7	3	0	24.0	0.95	24.95	33.01	8.06	Complied
1850.7	3	1	24.0	0.95	24.95	33.01	8.06	Complied
1850.7	1	5	23.9	0.95	24.85	33.01	8.16	Complied
1850.7	1	0	23.9	0.95	24.85	33.01	8.16	Complied
1850.7	1	3	24.0	0.95	24.95	33.01	8.06	Complied

Results: 1.4 MHz Channel Bandwidth / Bottom Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1850.7	6	0	21.9	0.95	22.85	33.01	10.16	Complied
1850.7	3	3	23.0	0.95	23.95	33.01	9.06	Complied
1850.7	3	0	22.9	0.95	23.85	33.01	9.16	Complied
1850.7	3	1	23.0	0.95	23.95	33.01	9.06	Complied
1850.7	1	5	23.0	0.95	23.95	33.01	9.06	Complied
1850.7	1	0	23.0	0.95	23.95	33.01	9.06	Complied
1850.7	1	3	23.2	0.95	24.15	33.01	8.86	Complied

Results: 1.4 MHz Channel Bandwidth / Middle Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	6	0	23.1	0.95	24.05	33.01	8.96	Complied
1880.0	3	3	24.0	0.95	24.95	33.01	8.06	Complied
1880.0	3	0	24.0	0.95	24.95	33.01	8.06	Complied
1880.0	3	1	24.1	0.95	25.05	33.01	7.96	Complied
1880.0	1	5	24.0	0.95	24.95	33.01	8.06	Complied
1880.0	1	0	24.0	0.95	24.95	33.01	8.06	Complied
1880.0	1	3	24.0	0.95	24.95	33.01	8.06	Complied

Transmitter Output Power (EIRP) (continued)

Results: 1.4 MHz Channel Bandwidth / Middle Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	6	0	22.0	0.95	22.95	33.01	10.06	Complied
1880.0	3	3	23.1	0.95	24.05	33.01	8.96	Complied
1880.0	3	0	23.1	0.95	24.05	33.01	8.96	Complied
1880.0	3	1	23.2	0.95	24.15	33.01	8.86	Complied
1880.0	1	5	23.0	0.95	23.95	33.01	9.06	Complied
1880.0	1	0	23.0	0.95	23.95	33.01	9.06	Complied
1880.0	1	3	23.1	0.95	24.05	33.01	8.96	Complied

Results: 1.4 MHz Channel Bandwidth / Top Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1909.3	6	0	23.0	0.95	23.95	33.01	9.06	Complied
1909.3	3	3	24.1	0.95	25.05	33.01	7.96	Complied
1909.3	3	0	24.1	0.95	25.05	33.01	7.96	Complied
1909.3	3	1	24.1	0.95	25.05	33.01	7.96	Complied
1909.3	1	5	24.0	0.95	24.95	33.01	8.06	Complied
1909.3	1	0	24.1	0.95	25.05	33.01	7.96	Complied
1909.3	1	3	24.1	0.95	25.05	33.01	7.96	Complied

Results: 1.4 MHz Channel Bandwidth / Top Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1909.3	6	0	22.1	0.95	23.05	33.01	9.96	Complied
1909.3	3	3	23.3	0.95	24.25	33.01	8.76	Complied
1909.3	3	0	23.2	0.95	24.15	33.01	8.86	Complied
1909.3	3	1	23.3	0.95	24.25	33.01	8.76	Complied
1909.3	1	5	23.0	0.95	23.95	33.01	9.06	Complied
1909.3	1	0	23.0	0.95	23.95	33.01	9.06	Complied
1909.3	1	3	23.1	0.95	24.05	33.01	8.96	Complied

Transmitter Output Power (EIRP) (continued)

Results: 3 MHz Channel Bandwidth / Bottom Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1851.5	15	0	23.1	0.95	24.05	33.01	8.96	Complied
1851.5	8	7	23.0	0.95	23.95	33.01	9.06	Complied
1851.5	8	0	23.0	0.95	23.95	33.01	9.06	Complied
1851.5	8	4	23.0	0.95	23.95	33.01	9.06	Complied
1851.5	1	14	24.0	0.95	24.95	33.01	8.06	Complied
1851.5	1	0	24.1	0.95	25.05	33.01	7.96	Complied
1851.5	1	7	24.1	0.95	25.05	33.01	7.96	Complied

Results: 3 MHz Channel Bandwidth / Bottom Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1851.5	15	0	22.1	0.95	23.05	33.01	9.96	Complied
1851.5	8	7	22.0	0.95	22.95	33.01	10.06	Complied
1851.5	8	0	22.0	0.95	22.95	33.01	10.06	Complied
1851.5	8	4	22.1	0.95	23.05	33.01	9.96	Complied
1851.5	1	14	23.1	0.95	24.05	33.01	8.96	Complied
1851.5	1	0	23.2	0.95	24.15	33.01	8.86	Complied
1851.5	1	7	23.2	0.95	24.15	33.01	8.86	Complied

Results: 3 MHz Channel Bandwidth / Middle Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	15	0	23.1	0.95	24.05	33.01	8.96	Complied
1880.0	8	7	23.1	0.95	24.05	33.01	8.96	Complied
1880.0	8	0	23.1	0.95	24.05	33.01	8.96	Complied
1880.0	8	4	23.1	0.95	24.05	33.01	8.96	Complied
1880.0	1	14	24.0	0.95	24.95	33.01	8.06	Complied
1880.0	1	0	24.1	0.95	25.05	33.01	7.96	Complied
1880.0	1	7	24.2	0.95	25.15	33.01	7.86	Complied

Transmitter Output Power (EIRP) (continued)

Results: 3 MHz Channel Bandwidth / Middle Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	15	0	22.1	0.95	23.05	33.01	9.96	Complied
1880.0	8	7	22.2	0.95	23.15	33.01	9.86	Complied
1880.0	8	0	22.2	0.95	23.15	33.01	9.86	Complied
1880.0	8	4	22.2	0.95	23.15	33.01	9.86	Complied
1880.0	1	14	23.0	0.95	23.95	33.01	9.06	Complied
1880.0	1	0	23.1	0.95	24.05	33.01	8.96	Complied
1880.0	1	7	23.2	0.95	24.15	33.01	8.86	Complied

Results: 3 MHz Channel Bandwidth / Top Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1908.5	15	0	23.1	0.95	24.05	33.01	8.96	Complied
1908.5	8	7	23.0	0.95	23.95	33.01	9.06	Complied
1908.5	8	0	23.1	0.95	24.05	33.01	8.96	Complied
1908.5	8	4	23.1	0.95	24.05	33.01	8.96	Complied
1908.5	1	14	24.1	0.95	25.05	33.01	7.96	Complied
1908.5	1	0	24.1	0.95	25.05	33.01	7.96	Complied
1908.5	1	7	24.1	0.95	25.05	33.01	7.96	Complied

Results: 3 MHz Channel Bandwidth / Top Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1908.5	15	0	22.1	0.95	23.05	33.01	9.96	Complied
1908.5	8	7	22.2	0.95	23.15	33.01	9.86	Complied
1908.5	8	0	22.2	0.95	23.15	33.01	9.86	Complied
1908.5	8	4	22.3	0.95	23.25	33.01	9.76	Complied
1908.5	1	14	23.5	0.95	24.45	33.01	8.56	Complied
1908.5	1	0	23.6	0.95	24.55	33.01	8.46	Complied
1908.5	1	7	23.6	0.95	24.55	33.01	8.46	Complied

Transmitter Output Power (EIRP) (continued)

Results: 5 MHz Channel Bandwidth / Bottom Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1852.5	25	0	23.1	0.95	24.05	33.01	8.96	Complied
1852.5	12	13	23.0	0.95	23.95	33.01	9.06	Complied
1852.5	12	0	23.0	0.95	23.95	33.01	9.06	Complied
1852.5	12	7	23.1	0.95	24.05	33.01	8.96	Complied
1852.5	1	24	24.1	0.95	25.05	33.01	7.96	Complied
1852.5	1	0	24.1	0.95	25.05	33.01	7.96	Complied
1852.5	1	12	24.1	0.95	25.05	33.01	7.96	Complied

Results: 5 MHz Channel Bandwidth / Bottom Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1852.5	25	0	22.0	0.95	22.95	33.01	10.06	Complied
1852.5	12	13	22.1	0.95	23.05	33.01	9.96	Complied
1852.5	12	0	22.1	0.95	23.05	33.01	9.96	Complied
1852.5	12	7	22.1	0.95	23.05	33.01	9.96	Complied
1852.5	1	24	23.3	0.95	24.25	33.01	8.76	Complied
1852.5	1	0	23.3	0.95	24.25	33.01	8.76	Complied
1852.5	1	12	23.3	0.95	24.25	33.01	8.76	Complied

Results: 5 MHz Channel Bandwidth / Middle Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	25	0	23.1	0.95	24.05	33.01	8.96	Complied
1880.0	12	13	23.1	0.95	24.05	33.01	8.96	Complied
1880.0	12	0	23.1	0.95	24.05	33.01	8.96	Complied
1880.0	12	7	23.1	0.95	24.05	33.01	8.96	Complied
1880.0	1	24	24.2	0.95	25.15	33.01	7.86	Complied
1880.0	1	0	24.2	0.95	25.15	33.01	7.86	Complied
1880.0	1	12	24.1	0.95	25.05	33.01	7.96	Complied

Transmitter Output Power (EIRP) (continued)

Results: 5 MHz Channel Bandwidth / Middle Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	25	0	22.2	0.95	23.15	33.01	9.86	Complied
1880.0	12	13	22.0	0.95	22.95	33.01	10.06	Complied
1880.0	12	0	22.1	0.95	23.05	33.01	9.96	Complied
1880.0	12	7	22.1	0.95	23.05	33.01	9.96	Complied
1880.0	1	24	23.1	0.95	24.05	33.01	8.96	Complied
1880.0	1	0	23.3	0.95	24.25	33.01	8.76	Complied
1880.0	1	12	23.1	0.95	24.05	33.01	8.96	Complied

Results: 5 MHz Channel Bandwidth / Top Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1907.5	25	0	23.1	0.95	24.05	33.01	8.96	Complied
1907.5	12	13	23.1	0.95	24.05	33.01	8.96	Complied
1907.5	12	0	23.0	0.95	23.95	33.01	9.06	Complied
1907.5	12	7	23.0	0.95	23.95	33.01	9.06	Complied
1907.5	1	24	24.2	0.95	25.15	33.01	7.86	Complied
1907.5	1	0	24.1	0.95	25.05	33.01	7.96	Complied
1907.5	1	12	24.1	0.95	25.05	33.01	7.96	Complied

Results: 5 MHz Channel Bandwidth / Top Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1907.5	25	0	22.1	0.95	23.05	33.01	9.96	Complied
1907.5	12	13	22.1	0.95	23.05	33.01	9.96	Complied
1907.5	12	0	22.0	0.95	22.95	33.01	10.06	Complied
1907.5	12	7	22.0	0.95	22.95	33.01	10.06	Complied
1907.5	1	24	23.0	0.95	23.95	33.01	9.06	Complied
1907.5	1	0	22.9	0.95	23.85	33.01	9.16	Complied
1907.5	1	12	23.0	0.95	23.95	33.01	9.06	Complied

Transmitter Output Power (EIRP) (continued)

Results: 10 MHz Channel Bandwidth / Bottom Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1855.0	50	0	23.1	0.95	24.05	33.01	8.96	Complied
1855.0	25	24	23.1	0.95	24.05	33.01	8.96	Complied
1855.0	25	0	23.1	0.95	24.05	33.01	8.96	Complied
1855.0	25	12	23.1	0.95	24.05	33.01	8.96	Complied
1855.0	1	49	24.1	0.95	25.05	33.01	7.96	Complied
1855.0	1	0	24.1	0.95	25.05	33.01	7.96	Complied
1855.0	1	24	24.1	0.95	25.05	33.01	7.96	Complied

Results: 10 MHz Channel Bandwidth / Bottom Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1855.0	50	0	22.1	0.95	23.05	33.01	9.96	Complied
1855.0	25	24	22.2	0.95	23.15	33.01	9.86	Complied
1855.0	25	0	22.2	0.95	23.15	33.01	9.86	Complied
1855.0	25	12	22.2	0.95	23.15	33.01	9.86	Complied
1855.0	1	49	23.2	0.95	24.15	33.01	8.86	Complied
1855.0	1	0	23.2	0.95	24.15	33.01	8.86	Complied
1855.0	1	24	23.2	0.95	24.15	33.01	8.86	Complied

Results: 10 MHz Channel Bandwidth / Middle Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	50	0	23.2	0.95	24.15	33.01	8.86	Complied
1880.0	25	24	23.1	0.95	24.05	33.01	8.96	Complied
1880.0	25	0	23.2	0.95	24.15	33.01	8.86	Complied
1880.0	25	12	23.2	0.95	24.15	33.01	8.86	Complied
1880.0	1	49	24.1	0.95	25.05	33.01	7.96	Complied
1880.0	1	0	24.2	0.95	25.15	33.01	7.86	Complied
1880.0	1	24	24.0	0.95	24.95	33.01	8.06	Complied

Transmitter Output Power (EIRP) (continued)

Results: 10 MHz Channel Bandwidth / Middle Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	50	0	22.2	0.95	23.15	33.01	9.86	Complied
1880.0	25	24	22.1	0.95	23.05	33.01	9.96	Complied
1880.0	25	0	22.3	0.95	23.25	33.01	9.76	Complied
1880.0	25	12	22.2	0.95	23.15	33.01	9.86	Complied
1880.0	1	49	23.1	0.95	24.05	33.01	8.96	Complied
1880.0	1	0	23.2	0.95	24.15	33.01	8.86	Complied
1880.0	1	24	23.1	0.95	24.05	33.01	8.96	Complied

Results: 10 MHz Channel Bandwidth / Top Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1905.0	50	0	23.1	0.95	24.05	33.01	8.96	Complied
1905.0	25	24	23.1	0.95	24.05	33.01	8.96	Complied
1905.0	25	0	23.1	0.95	24.05	33.01	8.96	Complied
1905.0	25	12	23.1	0.95	24.05	33.01	8.96	Complied
1905.0	1	49	24.1	0.95	25.05	33.01	7.96	Complied
1905.0	1	0	24.0	0.95	24.95	33.01	8.06	Complied
1905.0	1	24	24.0	0.95	24.95	33.01	8.06	Complied

Results: 10 MHz Channel Bandwidth / Top Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1905.0	50	0	22.1	0.95	23.05	33.01	9.96	Complied
1905.0	25	24	22.1	0.95	23.05	33.01	9.96	Complied
1905.0	25	0	22.1	0.95	23.05	33.01	9.96	Complied
1905.0	25	12	22.1	0.95	23.05	33.01	9.96	Complied
1905.0	1	49	23.6	0.95	24.55	33.01	8.46	Complied
1905.0	1	0	23.5	0.95	24.45	33.01	8.56	Complied
1905.0	1	24	23.5	0.95	24.45	33.01	8.56	Complied

Transmitter Output Power (EIRP) (continued)

Results: 15 MHz Channel Bandwidth / Bottom Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1857.5	75	0	23.1	0.95	24.05	33.01	8.96	Complied
1857.5	36	37	23.2	0.95	24.15	33.01	8.86	Complied
1857.5	36	0	23.1	0.95	24.05	33.01	8.96	Complied
1857.5	36	18	23.1	0.95	24.05	33.01	8.96	Complied
1857.5	1	74	24.1	0.95	25.05	33.01	7.96	Complied
1857.5	1	0	24.1	0.95	25.05	33.01	7.96	Complied
1857.5	1	36	24.1	0.95	25.05	33.01	7.96	Complied

Results: 15 MHz Channel Bandwidth / Bottom Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1857.5	75	0	22.1	0.95	23.05	33.01	9.96	Complied
1857.5	36	37	22.2	0.95	23.15	33.01	9.86	Complied
1857.5	36	0	22.1	0.95	23.05	33.01	9.96	Complied
1857.5	36	18	22.1	0.95	23.05	33.01	9.96	Complied
1857.5	1	74	23.1	0.95	24.05	33.01	8.96	Complied
1857.5	1	0	23.1	0.95	24.05	33.01	8.96	Complied
1857.5	1	36	23.1	0.95	24.05	33.01	8.96	Complied

Results: 15 MHz Channel Bandwidth / Middle Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	75	0	23.2	0.95	24.15	33.01	8.86	Complied
1880.0	36	37	23.1	0.95	24.05	33.01	8.96	Complied
1880.0	36	0	23.2	0.95	24.15	33.01	8.86	Complied
1880.0	36	18	23.2	0.95	24.15	33.01	8.86	Complied
1880.0	1	74	24.1	0.95	25.05	33.01	7.96	Complied
1880.0	1	0	24.2	0.95	25.15	33.01	7.86	Complied
1880.0	1	36	24.2	0.95	25.15	33.01	7.86	Complied

Transmitter Output Power (EIRP) (continued)

Results: 15 MHz Channel Bandwidth / Middle Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	75	0	22.1	0.95	23.05	33.01	9.96	Complied
1880.0	36	37	22.1	0.95	23.05	33.01	9.96	Complied
1880.0	36	0	22.2	0.95	23.15	33.01	9.86	Complied
1880.0	36	18	22.2	0.95	23.15	33.01	9.86	Complied
1880.0	1	74	23.4	0.95	24.35	33.01	8.66	Complied
1880.0	1	0	23.5	0.95	24.45	33.01	8.56	Complied
1880.0	1	36	23.5	0.95	24.45	33.01	8.56	Complied

Results: 15 MHz Channel Bandwidth / Top Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1902.5	75	0	23.2	0.95	24.15	33.01	8.86	Complied
1902.5	36	37	23.2	0.95	24.15	33.01	8.86	Complied
1902.5	36	0	23.1	0.95	24.05	33.01	8.96	Complied
1902.5	36	18	23.2	0.95	24.15	33.01	8.86	Complied
1902.5	1	74	24.1	0.95	25.05	33.01	7.96	Complied
1902.5	1	0	24.1	0.95	25.05	33.01	7.96	Complied
1902.5	1	36	24.2	0.95	25.15	33.01	7.86	Complied

Results: 15 MHz Channel Bandwidth / Top Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1902.5	75	0	22.2	0.95	23.15	33.01	9.86	Complied
1902.5	36	37	22.2	0.95	23.15	33.01	9.86	Complied
1902.5	36	0	22.1	0.95	23.05	33.01	9.96	Complied
1902.5	36	18	22.2	0.95	23.15	33.01	9.86	Complied
1902.5	1	74	23.6	0.95	24.55	33.01	8.46	Complied
1902.5	1	0	23.6	0.95	24.55	33.01	8.46	Complied
1902.5	1	36	23.7	0.95	24.65	33.01	8.36	Complied

Transmitter Output Power (EIRP) (continued)

Results: 20 MHz Channel Bandwidth / Bottom Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1860.0	100	0	23.1	0.95	24.05	33.01	8.96	Complied
1860.0	50	49	23.2	0.95	24.15	33.01	8.86	Complied
1860.0	50	0	23.1	0.95	24.05	33.01	8.96	Complied
1860.0	50	24	23.2	0.95	24.15	33.01	8.86	Complied
1860.0	1	99	24.3	0.95	25.25	33.01	7.76	Complied
1860.0	1	0	24.3	0.95	25.25	33.01	7.76	Complied
1860.0	1	49	24.3	0.95	25.25	33.01	7.76	Complied

Results: 20 MHz Channel Bandwidth / Bottom Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1860.0	100	0	22.3	0.95	23.25	33.01	9.76	Complied
1860.0	50	49	22.4	0.95	23.35	33.01	9.66	Complied
1860.0	50	0	22.4	0.95	23.35	33.01	9.66	Complied
1860.0	50	24	22.4	0.95	23.35	33.01	9.66	Complied
1860.0	1	99	23.0	0.95	23.95	33.01	9.06	Complied
1860.0	1	0	22.8	0.95	23.75	33.01	9.26	Complied
1860.0	1	49	22.7	0.95	23.65	33.01	9.36	Complied

Results: 20 MHz Channel Bandwidth / Middle Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	100	0	23.2	0.95	24.15	33.01	8.86	Complied
1880.0	50	49	23.2	0.95	24.15	33.01	8.86	Complied
1880.0	50	0	23.2	0.95	24.15	33.01	8.86	Complied
1880.0	50	24	23.2	0.95	24.15	33.01	8.86	Complied
1880.0	1	99	24.0	0.95	24.95	33.01	8.06	Complied
1880.0	1	0	24.1	0.95	25.05	33.01	7.96	Complied
1880.0	1	49	24.1	0.95	25.05	33.01	7.96	Complied

Transmitter Output Power (EIRP) (continued)

Results: 20 MHz Channel Bandwidth / Middle Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	100	0	22.2	0.95	23.15	33.01	9.86	Complied
1880.0	50	49	22.2	0.95	23.15	33.01	9.86	Complied
1880.0	50	0	22.2	0.95	23.15	33.01	9.86	Complied
1880.0	50	24	22.2	0.95	23.15	33.01	9.86	Complied
1880.0	1	99	23.6	0.95	24.55	33.01	8.46	Complied
1880.0	1	0	23.6	0.95	24.55	33.01	8.46	Complied
1880.0	1	49	23.7	0.95	24.65	33.01	8.36	Complied

Results: 20 MHz Channel Bandwidth / Top Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1900.0	100	0	23.2	0.95	24.15	33.01	8.86	Complied
1900.0	50	49	23.2	0.95	24.15	33.01	8.86	Complied
1900.0	50	0	23.2	0.95	24.15	33.01	8.86	Complied
1900.0	50	24	23.2	0.95	24.15	33.01	8.86	Complied
1900.0	1	99	24.1	0.95	25.05	33.01	7.96	Complied
1900.0	1	0	24.1	0.95	25.05	33.01	7.96	Complied
1900.0	1	49	24.1	0.95	25.05	33.01	7.96	Complied

Results: 20 MHz Channel Bandwidth / Top Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1900.0	100	0	22.2	0.95	23.15	33.01	9.86	Complied
1900.0	50	49	22.3	0.95	23.25	33.01	9.76	Complied
1900.0	50	0	22.1	0.95	23.05	33.01	9.96	Complied
1900.0	50	24	22.2	0.95	23.15	33.01	9.86	Complied
1900.0	1	99	23.3	0.95	24.25	33.01	8.76	Complied
1900.0	1	0	23.3	0.95	24.25	33.01	8.76	Complied
1900.0	1	49	23.4	0.95	24.35	33.01	8.66	Complied

Transmitter Output Power (EIRP) (continued)

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	CMW500	145923	05 Apr 2017	12
A2845	Attenuator	Radiall	R411.806.121	24325927	Calibrated before use	-
A2844	Attenuator	Radiall	R411.803.121	23404066	Calibrated before use	-
S0562	Power Supply	Thurlby Thandar	PL330QMD	054895	Calibrated before use	-
M1269	Multimeter	Fluke	179	90250210	13 May 2017	12
G0628	Signal Generator	Rohde & Schwarz	SMBV100A	261847	25 Jan 2017	12
M1835	Signal Analyser	Rohde & Schwarz	FSV30	103050	26 Feb 2017	12

5.2.2. Transmitter Output Power (EIRP) - UAT

Test Summary:

Test Engineer:	Keith Tucker	**Test Date:**	14 July 2016
Test Sample IMEI:	358640070269106		

FCC Reference:	Part 24.232(c)
Test Method Used:	KDB 971168 Section 2.2 footnote 1, Section 5.6 & Notes below

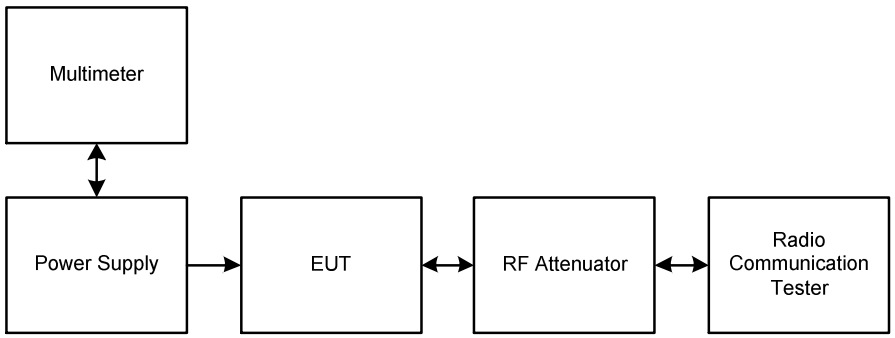
Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	46

Note(s):

1. The customer stated that the antenna gain is -0.77 dBi. The antenna gain was added to the conducted output power to obtain the EIRP.
2. Conducted average power was measured using a calibrated Rohde and Schwarz CMW 500 Wideband Radio Communication Tester.
3. The RF port of the EUT was connected to the Communication Tester via an RF cable and suitable attenuation. An RF level offset was entered on the Communication Tester to compensate for the loss of the attenuator and RF cable.

Test setup:



Transmitter Output Power (EIRP) (continued)

Results: 1.4 MHz Channel Bandwidth / Bottom Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1850.7	6	0	19.0	-0.77	18.23	33.01	14.78	Complied
1850.7	3	3	20.0	-0.77	19.23	33.01	13.78	Complied
1850.7	3	0	20.0	-0.77	19.23	33.01	13.78	Complied
1850.7	3	1	20.1	-0.77	19.33	33.01	13.68	Complied
1850.7	1	5	20.0	-0.77	19.23	33.01	13.78	Complied
1850.7	1	0	20.0	-0.77	19.23	33.01	13.78	Complied
1850.7	1	3	20.1	-0.77	19.33	33.01	13.68	Complied

Results: 1.4 MHz Channel Bandwidth / Bottom Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1850.7	6	0	18.0	-0.77	17.23	33.01	15.78	Complied
1850.7	3	3	19.2	-0.77	18.43	33.01	14.58	Complied
1850.7	3	0	19.2	-0.77	18.43	33.01	14.58	Complied
1850.7	3	1	19.2	-0.77	18.43	33.01	14.58	Complied
1850.7	1	5	19.0	-0.77	18.23	33.01	14.78	Complied
1850.7	1	0	19.0	-0.77	18.23	33.01	14.78	Complied
1850.7	1	3	19.0	-0.77	18.23	33.01	14.78	Complied

Results: 1.4 MHz Channel Bandwidth / Middle Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	6	0	19.1	-0.77	18.33	33.01	14.68	Complied
1880.0	3	3	20.1	-0.77	19.33	33.01	13.68	Complied
1880.0	3	0	20.1	-0.77	19.33	33.01	13.68	Complied
1880.0	3	1	20.2	-0.77	19.43	33.01	13.58	Complied
1880.0	1	5	20.0	-0.77	19.23	33.01	13.78	Complied
1880.0	1	0	20.0	-0.77	19.23	33.01	13.78	Complied
1880.0	1	3	20.1	-0.77	19.33	33.01	13.68	Complied

Transmitter Output Power (EIRP) (continued)

Results: 1.4 MHz Channel Bandwidth / Middle Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	6	0	18.0	-0.77	17.23	33.01	15.78	Complied
1880.0	3	3	19.1	-0.77	18.33	33.01	14.68	Complied
1880.0	3	0	19.0	-0.77	18.23	33.01	14.78	Complied
1880.0	3	1	19.0	-0.77	18.23	33.01	14.78	Complied
1880.0	1	5	19.1	-0.77	18.33	33.01	14.68	Complied
1880.0	1	0	19.1	-0.77	18.33	33.01	14.68	Complied
1880.0	1	3	19.2	-0.77	18.43	33.01	14.58	Complied

Results: 1.4 MHz Channel Bandwidth / Top Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1909.3	6	0	19.1	-0.77	18.33	33.01	14.68	Complied
1909.3	3	3	20.1	-0.77	19.33	33.01	13.68	Complied
1909.3	3	0	20.1	-0.77	19.33	33.01	13.68	Complied
1909.3	3	1	20.1	-0.77	19.33	33.01	13.68	Complied
1909.3	1	5	20.0	-0.77	19.23	33.01	13.78	Complied
1909.3	1	0	20.0	-0.77	19.23	33.01	13.78	Complied
1909.3	1	3	20.1	-0.77	19.33	33.01	13.68	Complied

Results: 1.4 MHz Channel Bandwidth / Top Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1909.3	6	0	18.0	-0.77	17.23	33.01	15.78	Complied
1909.3	3	3	19.2	-0.77	18.43	33.01	14.58	Complied
1909.3	3	0	19.2	-0.77	18.43	33.01	14.58	Complied
1909.3	3	1	19.2	-0.77	18.43	33.01	14.58	Complied
1909.3	1	5	19.0	-0.77	18.23	33.01	14.78	Complied
1909.3	1	0	19.1	-0.77	18.33	33.01	14.68	Complied
1909.3	1	3	19.1	-0.77	18.33	33.01	14.68	Complied

Transmitter Output Power (EIRP) (continued)

Results: 3 MHz Channel Bandwidth / Bottom Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1851.5	15	0	19.1	-0.77	18.33	33.01	14.68	Complied
1851.5	8	7	19.0	-0.77	18.23	33.01	14.78	Complied
1851.5	8	0	19.0	-0.77	18.23	33.01	14.78	Complied
1851.5	8	4	19.1	-0.77	18.33	33.01	14.68	Complied
1851.5	1	14	20.0	-0.77	19.23	33.01	13.78	Complied
1851.5	1	0	20.1	-0.77	19.33	33.01	13.68	Complied
1851.5	1	7	20.1	-0.77	19.33	33.01	13.68	Complied

Results: 3 MHz Channel Bandwidth / Bottom Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1851.5	15	0	18.1	-0.77	17.33	33.01	15.68	Complied
1851.5	8	7	18.0	-0.77	17.23	33.01	15.78	Complied
1851.5	8	0	18.0	-0.77	17.23	33.01	15.78	Complied
1851.5	8	4	18.1	-0.77	17.33	33.01	15.68	Complied
1851.5	1	14	19.1	-0.77	18.33	33.01	14.68	Complied
1851.5	1	0	19.2	-0.77	18.43	33.01	14.58	Complied
1851.5	1	7	19.3	-0.77	18.53	33.01	14.48	Complied

Results: 3 MHz Channel Bandwidth / Middle Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	15	0	19.2	-0.77	18.43	33.01	14.58	Complied
1880.0	8	7	19.1	-0.77	18.33	33.01	14.68	Complied
1880.0	8	0	19.1	-0.77	18.33	33.01	14.68	Complied
1880.0	8	4	19.1	-0.77	18.33	33.01	14.68	Complied
1880.0	1	14	20.0	-0.77	19.23	33.01	13.78	Complied
1880.0	1	0	20.1	-0.77	19.33	33.01	13.68	Complied
1880.0	1	7	20.2	-0.77	19.43	33.01	13.58	Complied

Transmitter Output Power (EIRP) (continued)

Results: 3 MHz Channel Bandwidth / Middle Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	15	0	18.1	-0.77	17.33	33.01	15.68	Complied
1880.0	8	7	18.2	-0.77	17.43	33.01	15.58	Complied
1880.0	8	0	18.2	-0.77	17.43	33.01	15.58	Complied
1880.0	8	4	18.2	-0.77	17.43	33.01	15.58	Complied
1880.0	1	14	19.0	-0.77	18.23	33.01	14.78	Complied
1880.0	1	0	19.2	-0.77	18.43	33.01	14.58	Complied
1880.0	1	7	19.2	-0.77	18.43	33.01	14.58	Complied

Results: 3 MHz Channel Bandwidth / Top Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1908.5	15	0	19.2	-0.77	18.43	33.01	14.58	Complied
1908.5	8	7	19.1	-0.77	18.33	33.01	14.68	Complied
1908.5	8	0	19.1	-0.77	18.33	33.01	14.68	Complied
1908.5	8	4	19.1	-0.77	18.33	33.01	14.68	Complied
1908.5	1	14	20.1	-0.77	19.33	33.01	13.68	Complied
1908.5	1	0	20.1	-0.77	19.33	33.01	13.68	Complied
1908.5	1	7	20.1	-0.77	19.33	33.01	13.68	Complied

Results: 3 MHz Channel Bandwidth / Top Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1908.5	15	0	18.1	-0.77	17.33	33.01	15.68	Complied
1908.5	8	7	18.2	-0.77	17.43	33.01	15.58	Complied
1908.5	8	0	18.3	-0.77	17.53	33.01	15.48	Complied
1908.5	8	4	18.3	-0.77	17.53	33.01	15.48	Complied
1908.5	1	14	19.6	-0.77	18.83	33.01	14.18	Complied
1908.5	1	0	19.7	-0.77	18.93	33.01	14.08	Complied
1908.5	1	7	19.7	-0.77	18.93	33.01	14.08	Complied

Transmitter Output Power (EIRP) (continued)

Results: 5 MHz Channel Bandwidth / Bottom Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1852.5	25	0	19.1	-0.77	18.33	33.01	14.68	Complied
1852.5	12	13	19.0	-0.77	18.23	33.01	14.78	Complied
1852.5	12	0	19.0	-0.77	18.23	33.01	14.78	Complied
1852.5	12	7	19.0	-0.77	18.23	33.01	14.78	Complied
1852.5	1	24	20.0	-0.77	19.23	33.01	13.78	Complied
1852.5	1	0	20.0	-0.77	19.23	33.01	13.78	Complied
1852.5	1	12	20.0	-0.77	19.23	33.01	13.78	Complied

Results: 5 MHz Channel Bandwidth / Bottom Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1852.5	25	0	18.0	-0.77	17.23	33.01	15.78	Complied
1852.5	12	13	18.0	-0.77	17.23	33.01	15.78	Complied
1852.5	12	0	18.1	-0.77	17.33	33.01	15.68	Complied
1852.5	12	7	18.1	-0.77	17.33	33.01	15.68	Complied
1852.5	1	24	19.3	-0.77	18.53	33.01	14.48	Complied
1852.5	1	0	19.3	-0.77	18.53	33.01	14.48	Complied
1852.5	1	12	19.3	-0.77	18.53	33.01	14.48	Complied

Results: 5 MHz Channel Bandwidth / Middle Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	25	0	19.2	-0.77	18.43	33.01	14.58	Complied
1880.0	12	13	19.1	-0.77	18.33	33.01	14.68	Complied
1880.0	12	0	19.1	-0.77	18.33	33.01	14.68	Complied
1880.0	12	7	19.2	-0.77	18.43	33.01	14.58	Complied
1880.0	1	24	20.1	-0.77	19.33	33.01	13.68	Complied
1880.0	1	0	20.1	-0.77	19.33	33.01	13.68	Complied
1880.0	1	12	20.1	-0.77	19.33	33.01	13.68	Complied

Transmitter Output Power (EIRP) (continued)

Results: 5 MHz Channel Bandwidth / Middle Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	25	0	18.2	-0.77	17.43	33.01	15.58	Complied
1880.0	12	13	18.1	-0.77	17.33	33.01	15.68	Complied
1880.0	12	0	18.1	-0.77	17.33	33.01	15.68	Complied
1880.0	12	7	18.2	-0.77	17.43	33.01	15.58	Complied
1880.0	1	24	19.1	-0.77	18.33	33.01	14.68	Complied
1880.0	1	0	19.2	-0.77	18.43	33.01	14.58	Complied
1880.0	1	12	19.2	-0.77	18.43	33.01	14.58	Complied

Results: 5 MHz Channel Bandwidth / Top Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1907.5	25	0	19.2	-0.77	18.43	33.01	14.58	Complied
1907.5	12	13	19.1	-0.77	18.33	33.01	14.68	Complied
1907.5	12	0	19.1	-0.77	18.33	33.01	14.68	Complied
1907.5	12	7	19.1	-0.77	18.33	33.01	14.68	Complied
1907.5	1	24	20.2	-0.77	19.43	33.01	13.58	Complied
1907.5	1	0	20.2	-0.77	19.43	33.01	13.58	Complied
1907.5	1	12	20.2	-0.77	19.43	33.01	13.58	Complied

Results: 5 MHz Channel Bandwidth / Top Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1907.5	25	0	18.2	-0.77	17.43	33.01	15.58	Complied
1907.5	12	13	18.1	-0.77	17.33	33.01	15.68	Complied
1907.5	12	0	18.1	-0.77	17.33	33.01	15.68	Complied
1907.5	12	7	18.1	-0.77	17.33	33.01	15.68	Complied
1907.5	1	24	19.1	-0.77	18.33	33.01	14.68	Complied
1907.5	1	0	19.0	-0.77	18.23	33.01	14.78	Complied
1907.5	1	12	19.1	-0.77	18.33	33.01	14.68	Complied

Transmitter Output Power (EIRP) (continued)

Results: 10 MHz Channel Bandwidth / Bottom Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1855.0	50	0	19.1	-0.77	18.33	33.01	14.68	Complied
1855.0	25	24	19.1	-0.77	18.33	33.01	14.68	Complied
1855.0	25	0	19.1	-0.77	18.33	33.01	14.68	Complied
1855.0	25	12	19.1	-0.77	18.33	33.01	14.68	Complied
1855.0	1	49	20.0	-0.77	19.23	33.01	13.78	Complied
1855.0	1	0	20.1	-0.77	19.33	33.01	13.68	Complied
1855.0	1	24	20.0	-0.77	19.23	33.01	13.78	Complied

Results: 10 MHz Channel Bandwidth / Bottom Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1855.0	50	0	18.1	-0.77	17.33	33.01	15.68	Complied
1855.0	25	24	18.2	-0.77	17.43	33.01	15.58	Complied
1855.0	25	0	18.1	-0.77	17.33	33.01	15.68	Complied
1855.0	25	12	18.1	-0.77	17.33	33.01	15.68	Complied
1855.0	1	49	19.1	-0.77	18.33	33.01	14.68	Complied
1855.0	1	0	19.2	-0.77	18.43	33.01	14.58	Complied
1855.0	1	24	19.2	-0.77	18.43	33.01	14.58	Complied

Results: 10 MHz Channel Bandwidth / Middle Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	50	0	19.2	-0.77	18.43	33.01	14.58	Complied
1880.0	25	24	19.1	-0.77	18.33	33.01	14.68	Complied
1880.0	25	0	19.2	-0.77	18.43	33.01	14.58	Complied
1880.0	25	12	19.2	-0.77	18.43	33.01	14.58	Complied
1880.0	1	49	20.1	-0.77	19.33	33.01	13.68	Complied
1880.0	1	0	20.2	-0.77	19.43	33.01	13.58	Complied
1880.0	1	24	20.1	-0.77	19.33	33.01	13.68	Complied

Transmitter Output Power (EIRP) (continued)

Results: 10 MHz Channel Bandwidth / Middle Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	50	0	18.2	-0.77	17.43	33.01	15.58	Complied
1880.0	25	24	18.2	-0.77	17.43	33.01	15.58	Complied
1880.0	25	0	18.2	-0.77	17.43	33.01	15.58	Complied
1880.0	25	12	18.2	-0.77	17.43	33.01	15.58	Complied
1880.0	1	49	19.1	-0.77	18.33	33.01	14.68	Complied
1880.0	1	0	19.2	-0.77	18.43	33.01	14.58	Complied
1880.0	1	24	19.1	-0.77	18.33	33.01	14.68	Complied

Results: 10 MHz Channel Bandwidth / Top Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1905.0	50	0	19.2	-0.77	18.43	33.01	14.58	Complied
1905.0	25	24	19.2	-0.77	18.43	33.01	14.58	Complied
1905.0	25	0	19.2	-0.77	18.43	33.01	14.58	Complied
1905.0	25	12	19.2	-0.77	18.43	33.01	14.58	Complied
1905.0	1	49	20.1	-0.77	19.33	33.01	13.68	Complied
1905.0	1	0	20.1	-0.77	19.33	33.01	13.68	Complied
1905.0	1	24	20.1	-0.77	19.33	33.01	13.68	Complied

Results: 10 MHz Channel Bandwidth / Top Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1905.0	50	0	18.2	-0.77	17.43	33.01	15.58	Complied
1905.0	25	24	18.2	-0.77	17.43	33.01	15.58	Complied
1905.0	25	0	18.2	-0.77	17.43	33.01	15.58	Complied
1905.0	25	12	18.2	-0.77	17.43	33.01	15.58	Complied
1905.0	1	49	19.6	-0.77	18.83	33.01	14.18	Complied
1905.0	1	0	19.6	-0.77	18.83	33.01	14.18	Complied
1905.0	1	24	19.6	-0.77	18.83	33.01	14.18	Complied

Transmitter Output Power (EIRP) (continued)

Results: 15 MHz Channel Bandwidth / Bottom Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1857.5	75	0	19.1	-0.77	18.33	33.01	14.68	Complied
1857.5	36	37	19.1	-0.77	18.33	33.01	14.68	Complied
1857.5	36	0	19.0	-0.77	18.23	33.01	14.78	Complied
1857.5	36	18	19.1	-0.77	18.33	33.01	14.68	Complied
1857.5	1	74	20.0	-0.77	19.23	33.01	13.78	Complied
1857.5	1	0	20.0	-0.77	19.23	33.01	13.78	Complied
1857.5	1	36	20.1	-0.77	19.33	33.01	13.68	Complied

Results: 15 MHz Channel Bandwidth / Bottom Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1857.5	75	0	18.1	-0.77	17.33	33.01	15.68	Complied
1857.5	36	37	18.1	-0.77	17.33	33.01	15.68	Complied
1857.5	36	0	18.1	-0.77	17.33	33.01	15.68	Complied
1857.5	36	18	18.2	-0.77	17.43	33.01	15.58	Complied
1857.5	1	74	19.1	-0.77	18.33	33.01	14.68	Complied
1857.5	1	0	19.1	-0.77	18.33	33.01	14.68	Complied
1857.5	1	36	19.2	-0.77	18.43	33.01	14.58	Complied

Results: 15 MHz Channel Bandwidth / Middle Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	75	0	19.1	-0.77	18.33	33.01	14.68	Complied
1880.0	36	37	19.1	-0.77	18.33	33.01	14.68	Complied
1880.0	36	0	19.1	-0.77	18.33	33.01	14.68	Complied
1880.0	36	18	19.2	-0.77	18.43	33.01	14.58	Complied
1880.0	1	74	20.0	-0.77	19.23	33.01	13.78	Complied
1880.0	1	0	20.1	-0.77	19.33	33.01	13.68	Complied
1880.0	1	36	20.2	-0.77	19.43	33.01	13.58	Complied

Transmitter Output Power (EIRP) (continued)

Results: 15 MHz Channel Bandwidth / Middle Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	75	0	18.1	-0.77	17.33	33.01	15.68	Complied
1880.0	36	37	18.1	-0.77	17.33	33.01	15.68	Complied
1880.0	36	0	18.1	-0.77	17.33	33.01	15.68	Complied
1880.0	36	18	18.2	-0.77	17.43	33.01	15.58	Complied
1880.0	1	74	19.3	-0.77	18.53	33.01	14.48	Complied
1880.0	1	0	19.4	-0.77	18.63	33.01	14.38	Complied
1880.0	1	36	19.5	-0.77	18.73	33.01	14.28	Complied

Results: 15 MHz Channel Bandwidth / Top Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1902.5	75	0	19.1	-0.77	18.33	33.01	14.68	Complied
1902.5	36	37	19.1	-0.77	18.33	33.01	14.68	Complied
1902.5	36	0	19.0	-0.77	18.23	33.01	14.78	Complied
1902.5	36	18	19.2	-0.77	18.43	33.01	14.58	Complied
1902.5	1	74	20.0	-0.77	19.23	33.01	13.78	Complied
1902.5	1	0	20.1	-0.77	19.33	33.01	13.68	Complied
1902.5	1	36	20.2	-0.77	19.43	33.01	13.58	Complied

Results: 15 MHz Channel Bandwidth / Top Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1902.5	75	0	18.1	-0.77	17.33	33.01	15.68	Complied
1902.5	36	37	18.1	-0.77	17.33	33.01	15.68	Complied
1902.5	36	0	18.1	-0.77	17.33	33.01	15.68	Complied
1902.5	36	18	18.2	-0.77	17.43	33.01	15.58	Complied
1902.5	1	74	19.5	-0.77	18.73	33.01	14.28	Complied
1902.5	1	0	19.5	-0.77	18.73	33.01	14.28	Complied
1902.5	1	36	19.6	-0.77	18.83	33.01	14.18	Complied

Transmitter Output Power (EIRP) (continued)

Results: 20 MHz Channel Bandwidth / Bottom Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1860.0	100	0	19.1	-0.77	18.33	33.01	14.68	Complied
1860.0	50	49	19.1	-0.77	18.33	33.01	14.68	Complied
1860.0	50	0	19.0	-0.77	18.23	33.01	14.78	Complied
1860.0	50	24	19.1	-0.77	18.33	33.01	14.68	Complied
1860.0	1	99	20.1	-0.77	19.33	33.01	13.68	Complied
1860.0	1	0	20.2	-0.77	19.43	33.01	13.58	Complied
1860.0	1	49	20.2	-0.77	19.43	33.01	13.58	Complied

Results: 20 MHz Channel Bandwidth / Bottom Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1860.0	100	0	18.0	-0.77	17.23	33.01	15.78	Complied
1860.0	50	49	18.1	-0.77	17.33	33.01	15.68	Complied
1860.0	50	0	18.0	-0.77	17.23	33.01	15.78	Complied
1860.0	50	24	18.1	-0.77	17.33	33.01	15.68	Complied
1860.0	1	99	18.9	-0.77	18.13	33.01	14.88	Complied
1860.0	1	0	18.8	-0.77	18.03	33.01	14.98	Complied
1860.0	1	49	18.8	-0.77	18.03	33.01	14.98	Complied

Results: 20 MHz Channel Bandwidth / Middle Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	100	0	19.2	-0.77	18.43	33.01	14.58	Complied
1880.0	50	49	19.1	-0.77	18.33	33.01	14.68	Complied
1880.0	50	0	19.3	-0.77	18.53	33.01	14.48	Complied
1880.0	50	24	19.1	-0.77	18.33	33.01	14.68	Complied
1880.0	1	99	20.0	-0.77	19.23	33.01	13.78	Complied
1880.0	1	0	20.2	-0.77	19.43	33.01	13.58	Complied
1880.0	1	49	20.2	-0.77	19.43	33.01	13.58	Complied

Transmitter Output Power (EIRP) (continued)

Results: 20 MHz Channel Bandwidth / Middle Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1880.0	100	0	18.3	-0.77	17.53	33.01	15.48	Complied
1880.0	50	49	18.2	-0.77	17.43	33.01	15.58	Complied
1880.0	50	0	18.4	-0.77	17.63	33.01	15.38	Complied
1880.0	50	24	18.2	-0.77	17.43	33.01	15.58	Complied
1880.0	1	99	19.8	-0.77	19.03	33.01	13.98	Complied
1880.0	1	0	20.2	-0.77	19.43	33.01	13.58	Complied
1880.0	1	49	19.7	-0.77	18.93	33.01	14.08	Complied

Results: 20 MHz Channel Bandwidth / Top Channel / QPSK

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1900.0	100	0	19.1	-0.77	18.33	33.01	14.68	Complied
1900.0	50	49	19.1	-0.77	18.33	33.01	14.68	Complied
1900.0	50	0	19.1	-0.77	18.33	33.01	14.68	Complied
1900.0	50	24	19.1	-0.77	18.33	33.01	14.68	Complied
1900.0	1	99	20.0	-0.77	19.23	33.01	13.78	Complied
1900.0	1	0	20.1	-0.77	19.33	33.01	13.68	Complied
1900.0	1	49	20.0	-0.77	19.23	33.01	13.78	Complied

Results: 20 MHz Channel Bandwidth / Top Channel / 16QAM

Frequency (MHz)	Resource Block(s)	Resource Block Offset	Conducted RF Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)	Result
1900.0	100	0	18.1	-0.77	17.33	33.01	15.68	Complied
1900.0	50	49	18.1	-0.77	17.33	33.01	15.68	Complied
1900.0	50	0	18.1	-0.77	17.33	33.01	15.68	Complied
1900.0	50	24	18.1	-0.77	17.33	33.01	15.68	Complied
1900.0	1	99	19.3	-0.77	18.53	33.01	14.48	Complied
1900.0	1	0	19.4	-0.77	18.63	33.01	14.38	Complied
1900.0	1	49	19.3	-0.77	18.53	33.01	14.48	Complied

Transmitter Output Power (EIRP) (continued)

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	CMW500	145923	05 Apr 2017	12
A2845	Attenuator	Radiall	R411.806.121	24325927	Calibrated before use	-
A2844	Attenuator	Radiall	R411.803.121	23404066	Calibrated before use	-
S0562	Power Supply	Thurlby Thandar	PL330QMD	054895	Calibrated before use	-
M1269	Multimeter	Fluke	179	90250210	13 May 2017	12
G0628	Signal Generator	Rohde & Schwarz	SMBV100A	261847	25 Jan 2017	12
M1835	Signal Analyser	Rohde & Schwarz	FSV30	103050	26 Feb 2017	12

5.2.3. Transmitter Peak-To-Average Ratio (PAR)

Test Summary:

Test Engineer:	Keith Tucker	**Test Date:**	23 July 2016
Test Sample IMEI:	358640070269106		

FCC Reference:	Part 24.232(d)
Test Method Used:	KDB 971168 Section 5.7.1

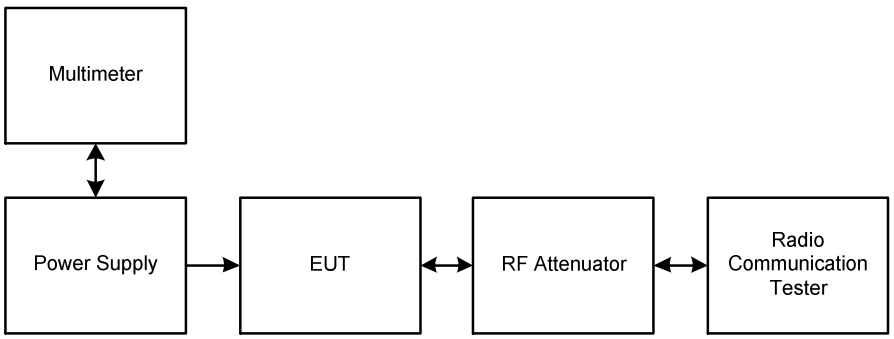
Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	47

Note(s):

1. The CCDF analyser function of a communications test set was used to measure PAR when the EUT was transmitting with both QPSK and 16QAM modulations, all supported channel bandwidths on bottom, middle and top channels for 1 resource block. Maximum PAR levels associated with a probability of 0.1% were recorded.

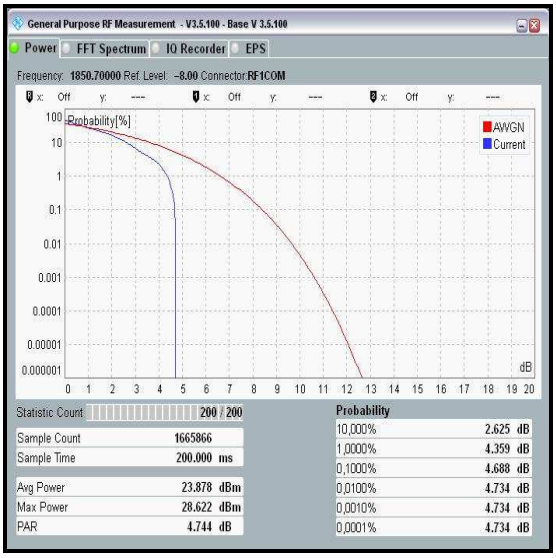
Test setup:



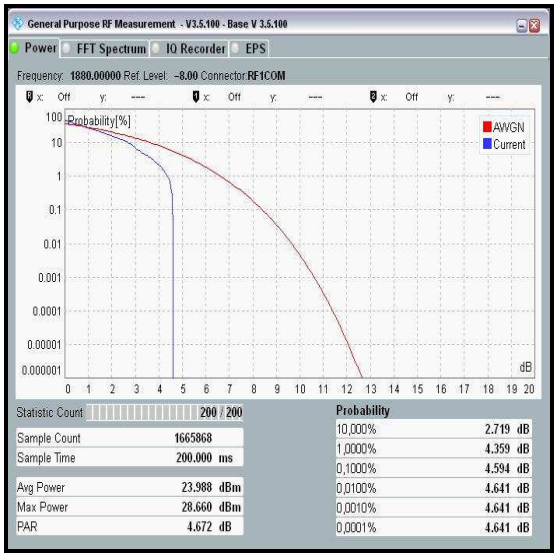
Transmitter Peak-To-Average Ratio (PAR) (continued)

Results: 1.4 MHz Channel Bandwidth / QPSK

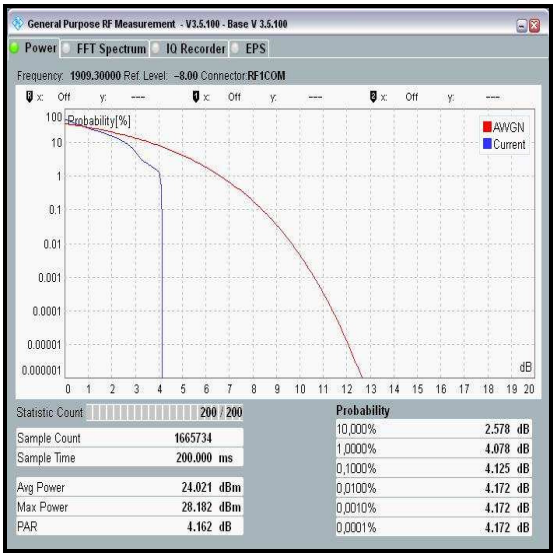
Channel	Resource Block(s)	Resource Block Offset	PAR (dB)	Ratio Limit (dB)	Margin (dB)	Result
Bottom	1	0	4.7	13.0	8.3	Complied
Middle	1	0	4.6	13.0	8.4	Complied
Top	1	0	4.1	13.0	8.9	Complied



Bottom Channel / QPSK



Middle Channel / QPSK

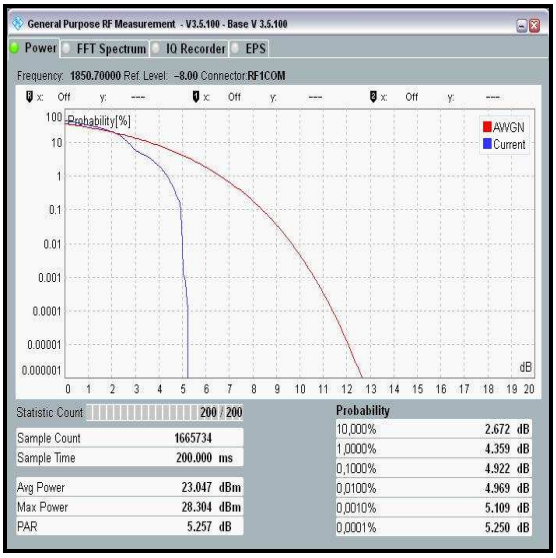


Top Channel / QPSK

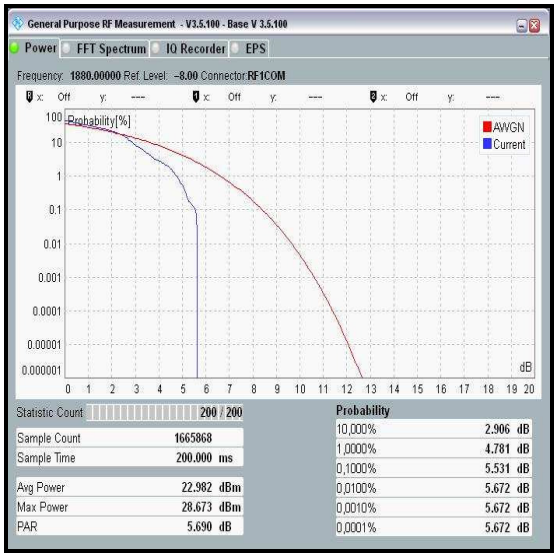
Transmitter Peak-To-Average Ratio (PAR) (continued)

Results: 1.4 MHz Channel Bandwidth / 16QAM

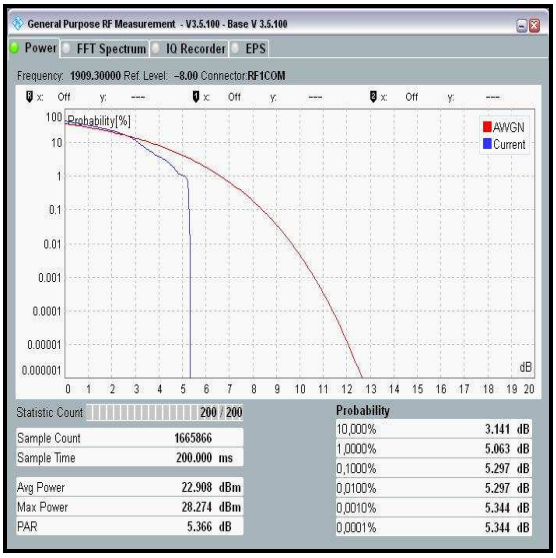
Channel	Resource Block(s)	Resource Block Offset	PAR (dB)	Ratio Limit (dB)	Margin (dB)	Result
Bottom	1	0	4.9	13.0	8.1	Complied
Middle	1	0	5.5	13.0	7.5	Complied
Top	1	0	5.3	13.0	7.7	Complied



Bottom Channel / 16QAM



Middle Channel / 16QAM

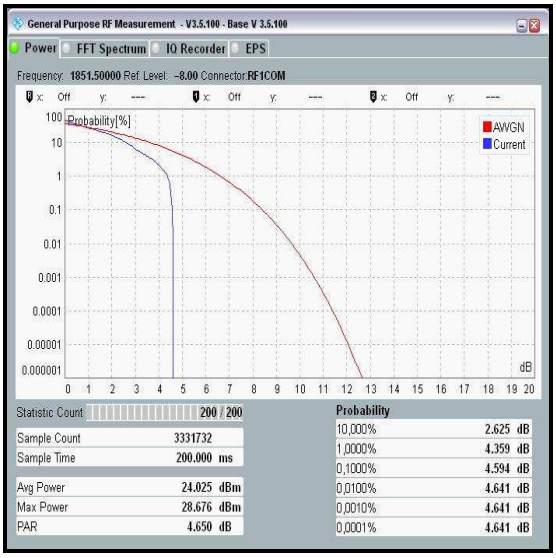


Top Channel / 16QAM

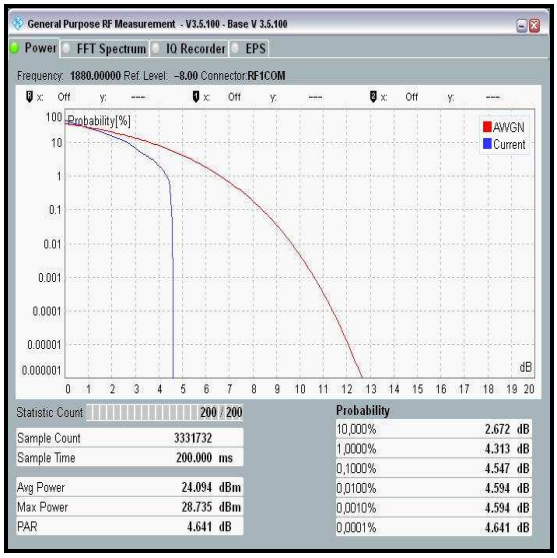
Transmitter Peak-To-Average Ratio (PAR) (continued)

Results: 3 MHz Channel Bandwidth / QPSK

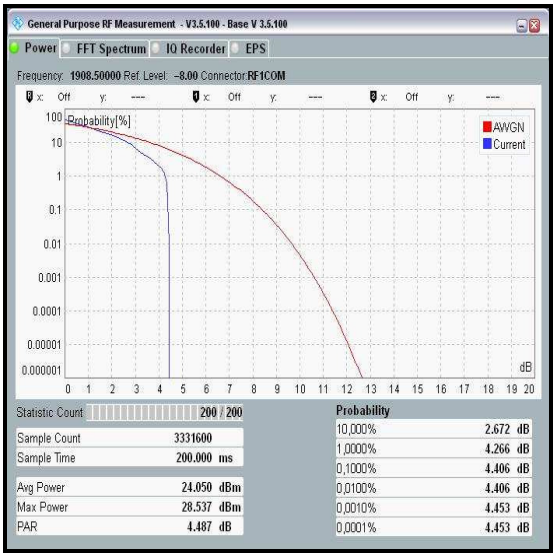
Channel	Resource Block(s)	Resource Block Offset	PAR (dB)	Ratio Limit (dB)	Margin (dB)	Result
Bottom	1	0	4.6	13.0	8.4	Complied
Middle	1	0	4.5	13.0	8.5	Complied
Top	1	0	4.4	13.0	8.6	Complied



Bottom Channel / QPSK



Middle Channel / QPSK

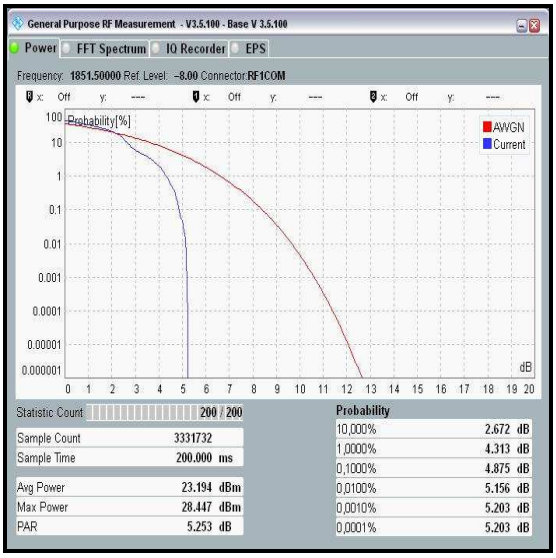


Top Channel / QPSK

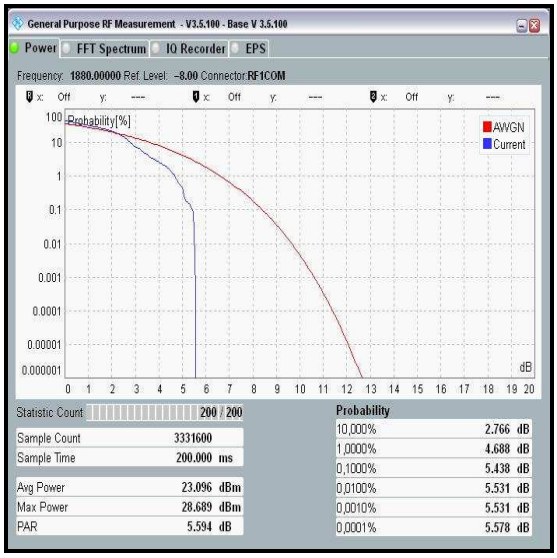
Transmitter Peak-To-Average Ratio (PAR) (continued)

Results: 3 MHz Channel Bandwidth / 16QAM

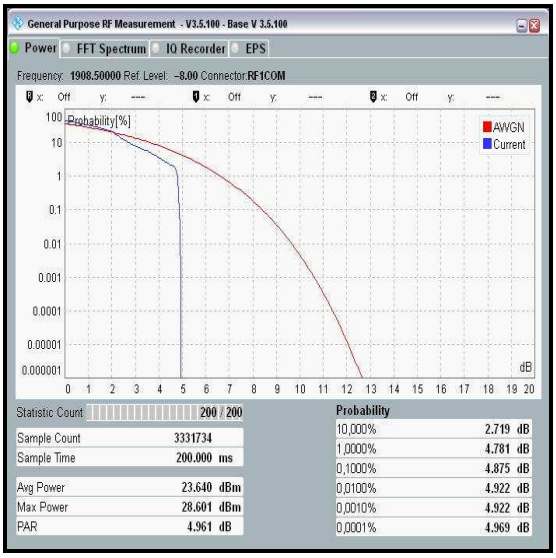
Channel	Resource Block(s)	Resource Block Offset	PAR (dB)	Ratio Limit (dB)	Margin (dB)	Result
Bottom	1	0	4.9	13.0	8.1	Complied
Middle	1	0	5.4	13.0	7.6	Complied
Top	1	0	4.9	13.0	8.1	Complied



Bottom Channel / 16QAM



Middle Channel / 16QAM

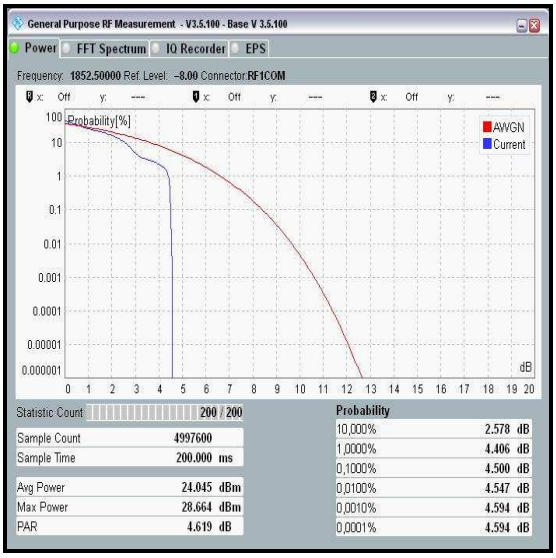


Top Channel / 16QAM

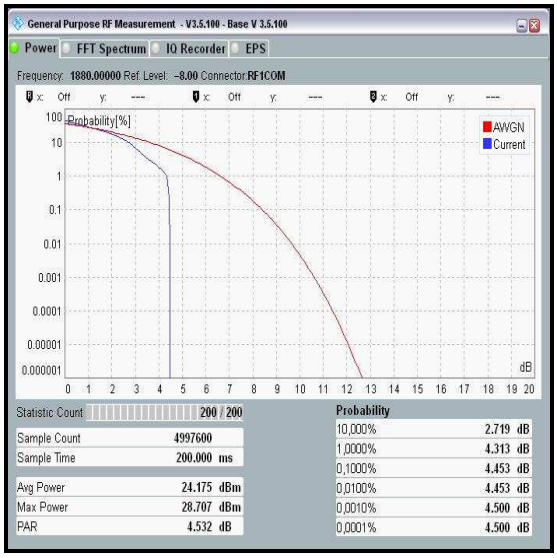
Transmitter Peak-To-Average Ratio (PAR) (continued)

Results: 5 MHz Channel Bandwidth / QPSK

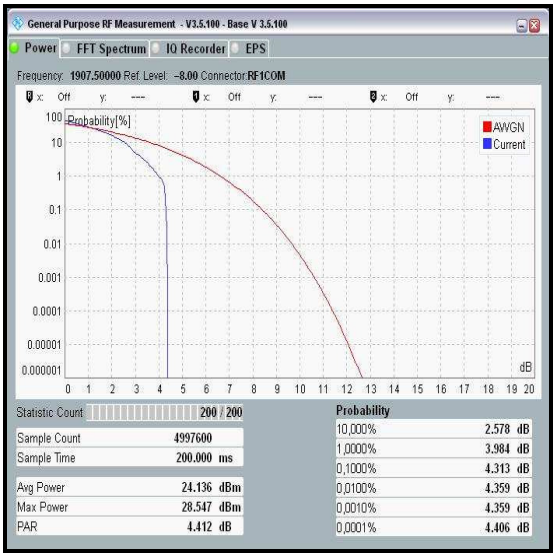
Channel	Resource Block(s)	Resource Block Offset	PAR (dB)	Ratio Limit (dB)	Margin (dB)	Result
Bottom	1	0	4.5	13.0	8.5	Complied
Middle	1	0	4.5	13.0	8.5	Complied
Top	1	0	4.3	13.0	8.7	Complied



Bottom Channel / QPSK



Middle Channel / QPSK

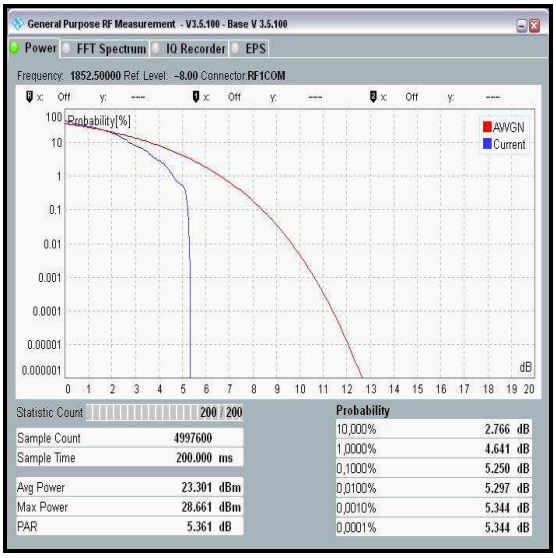


Top Channel / QPSK

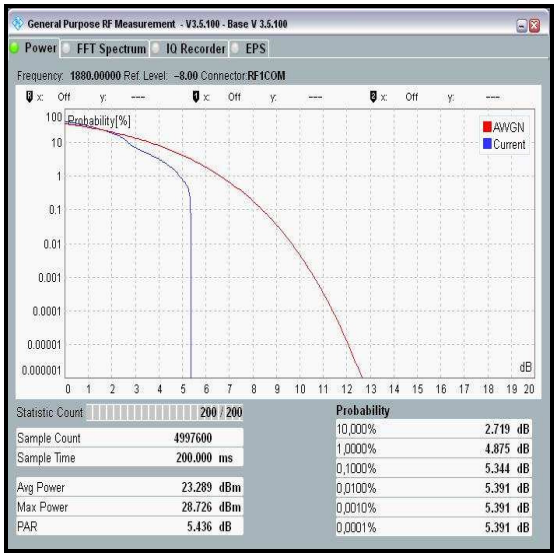
Transmitter Peak-To-Average Ratio (PAR) (continued)

Results: 5 MHz Channel Bandwidth / 16QAM

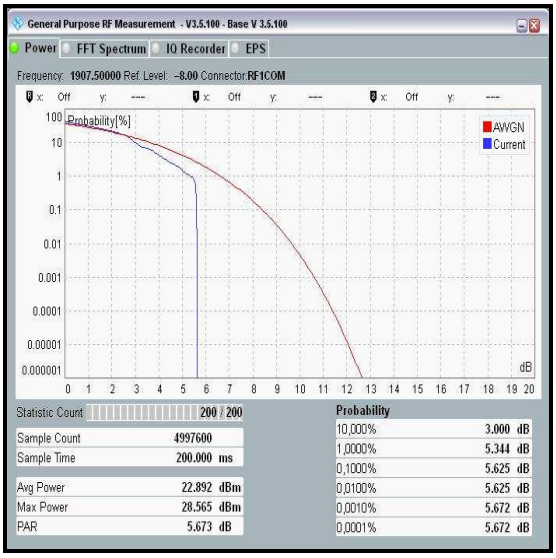
Channel	Resource Block(s)	Resource Block Offset	PAR (dB)	Ratio Limit (dB)	Margin (dB)	Result
Bottom	1	0	5.3	13.0	7.7	Complied
Middle	1	0	5.3	13.0	7.7	Complied
Top	1	0	5.6	13.0	7.4	Complied



Bottom Channel / 16QAM



Middle Channel / 16QAM

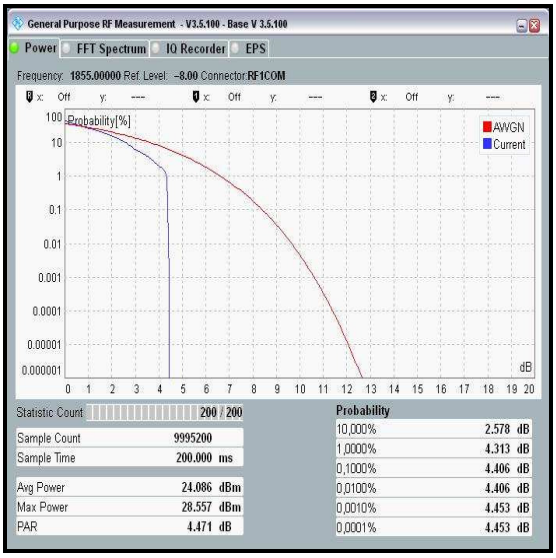


Top Channel / 16QAM

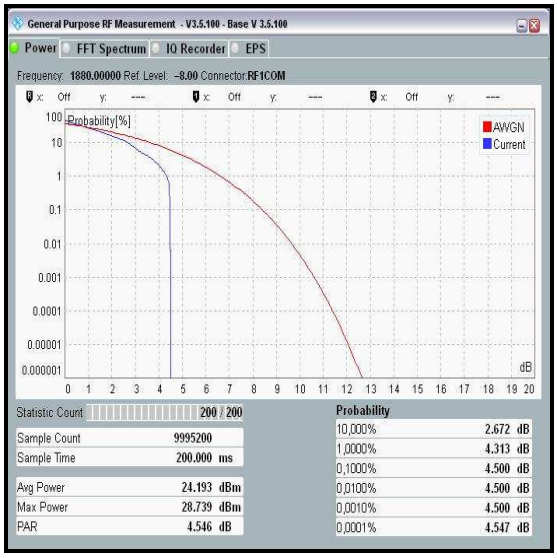
Transmitter Peak-To-Average Ratio (PAR) (continued)

Results: 10 MHz Channel Bandwidth / QPSK

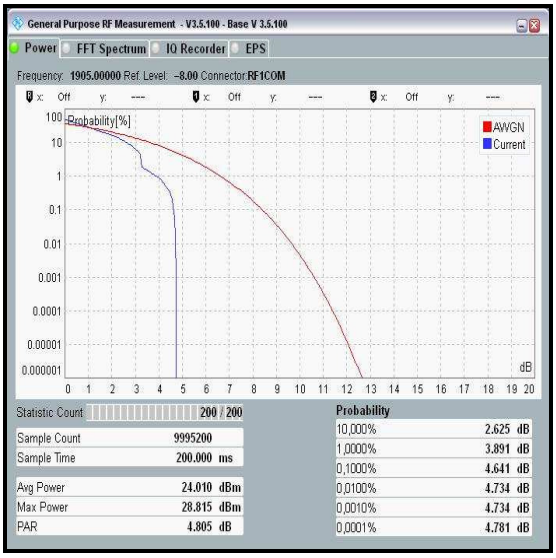
Channel	Resource Block(s)	Resource Block Offset	PAR (dB)	Ratio Limit (dB)	Margin (dB)	Result
Bottom	1	0	4.4	13.0	8.6	Complied
Middle	1	0	4.5	13.0	8.5	Middle
Top	1	0	4.6	13.0	8.4	Complied



Bottom Channel / QPSK



Middle Channel / QPSK

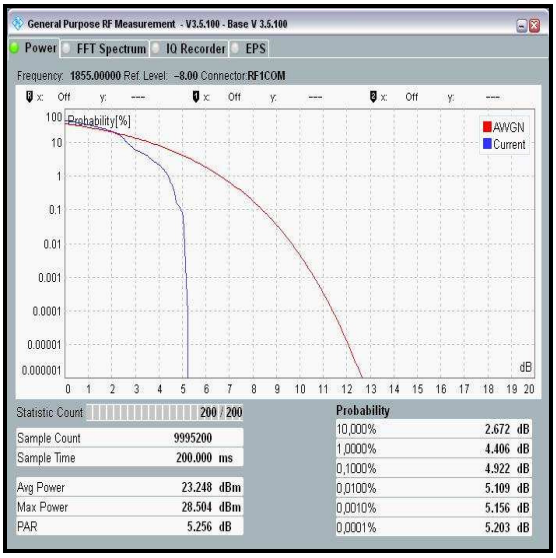


Top Channel / QPSK

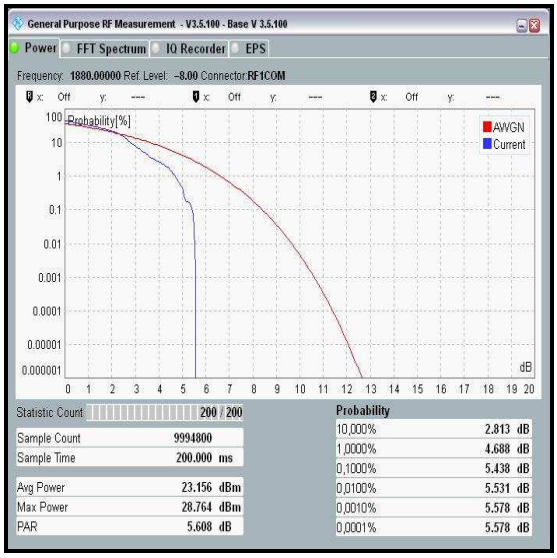
Transmitter Peak-To-Average Ratio (PAR) (continued)

Results: 10 MHz Channel Bandwidth / 16QAM

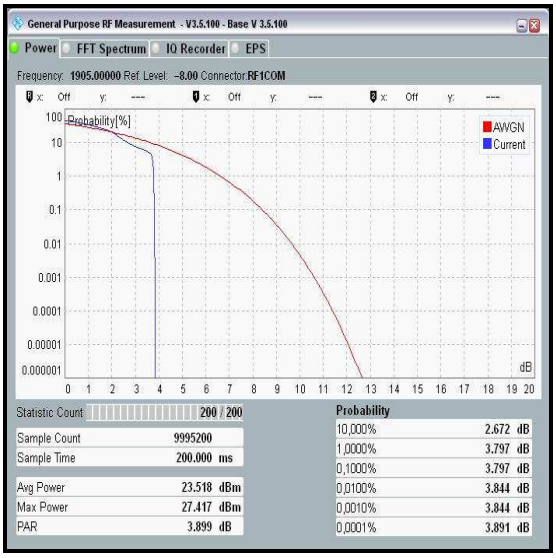
Channel	Resource Block(s)	Resource Block Offset	PAR (dB)	Ratio Limit (dB)	Margin (dB)	Result
Bottom	1	0	4.9	13.0	8.1	Complied
Middle	1	0	5.4	13.0	7.6	Complied
Top	1	0	3.8	13.0	9.2	Complied



Bottom Channel / 16QAM



Middle Channel / 16QAM

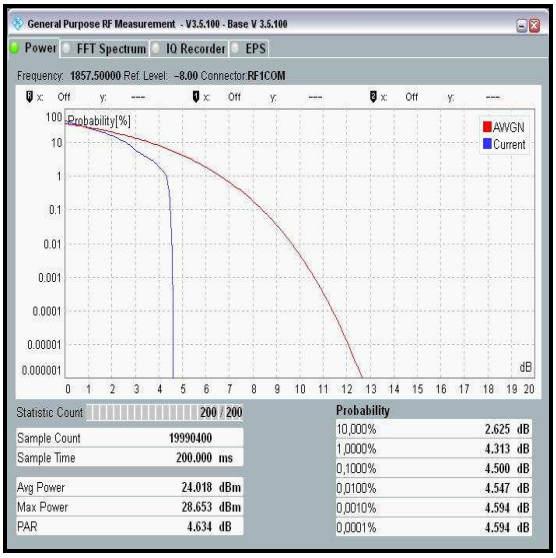


Top Channel / 16QAM

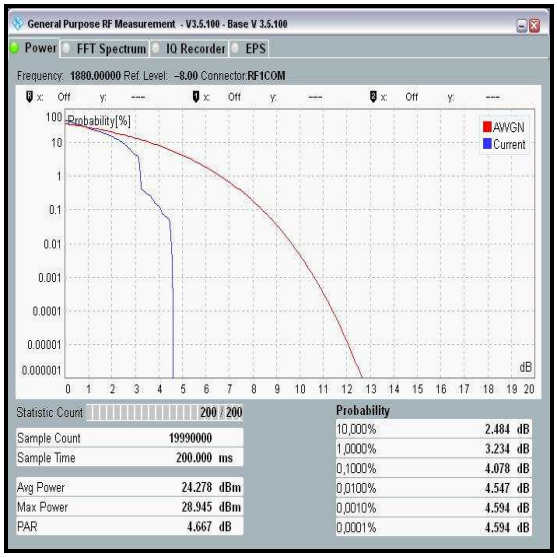
Transmitter Peak-To-Average Ratio (PAR) (continued)

Results: 15 MHz Channel Bandwidth / QPSK

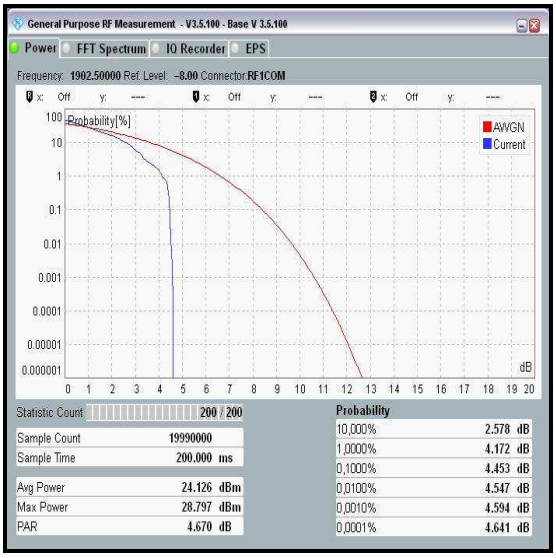
Channel	Resource Block(s)	Resource Block Offset	PAR (dB)	Ratio Limit (dB)	Margin (dB)	Result
Bottom	1	0	4.5	13.0	8.5	Complied
Middle	1	0	4.1	13.0	8.9	Complied
Top	1	0	4.5	13.0	8.5	Complied



Bottom Channel / QPSK



Middle Channel / QPSK

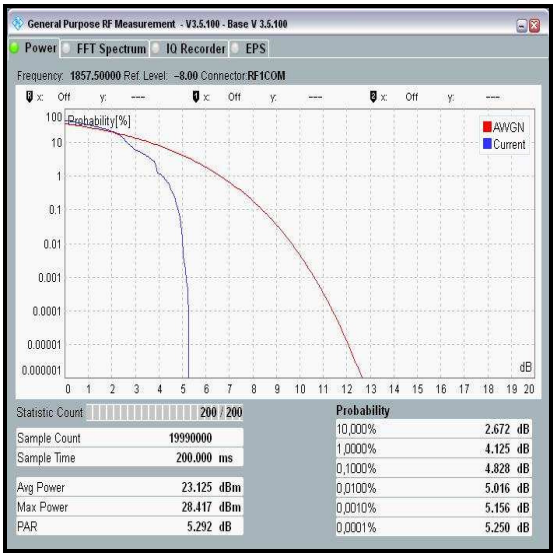


Top Channel / QPSK

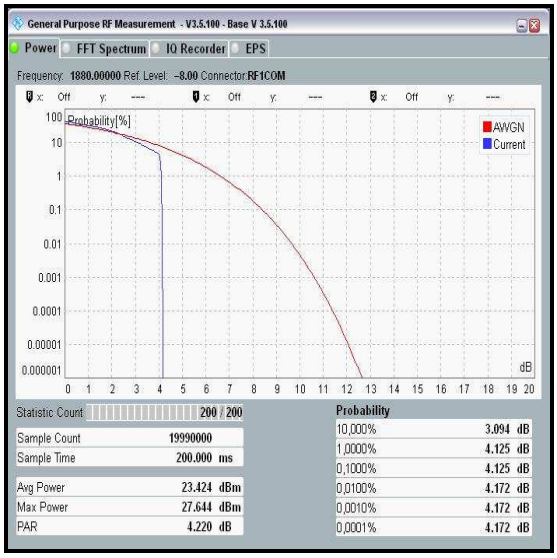
Transmitter Peak-To-Average Ratio (PAR) (continued)

Results: 15 MHz Channel Bandwidth / 16QAM

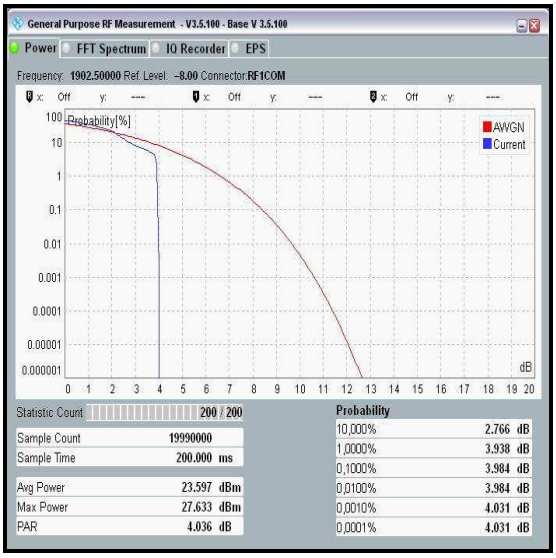
Channel	Resource Block(s)	Resource Block Offset	PAR (dB)	Ratio Limit (dB)	Margin (dB)	Result
Bottom	1	0	4.8	13.0	8.2	Complied
Middle	1	0	4.1	13.0	8.9	Complied
Top	1	0	4.0	13.0	9.0	Complied



Bottom Channel / 16QAM



Middle Channel / 16QAM

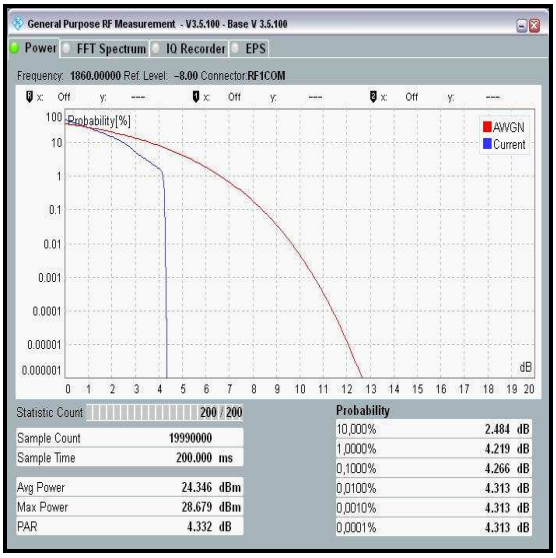


Top Channel / 16QAM

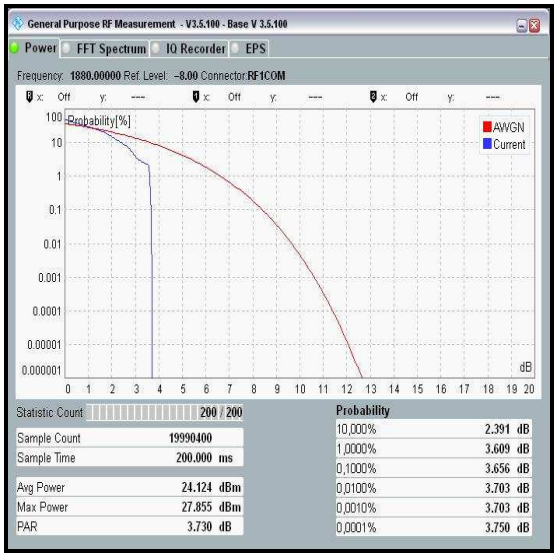
Transmitter Peak-To-Average Ratio (PAR) (continued)

Results: 20 MHz Channel Bandwidth / QPSK

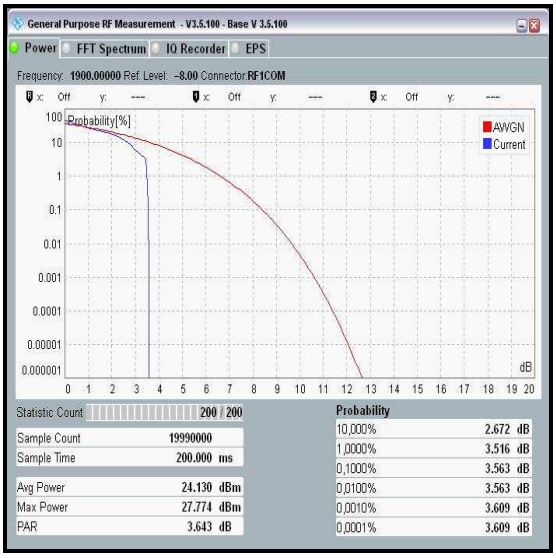
Channel	Resource Block(s)	Resource Block Offset	PAR (dB)	Ratio Limit (dB)	Margin (dB)	Result
Bottom	1	0	4.3	13.0	8.7	Complied
Middle	1	0	3.7	13.0	9.3	Complied
Top	1	0	3.6	13.0	9.4	Complied



Bottom Channel / QPSK



Middle Channel / QPSK

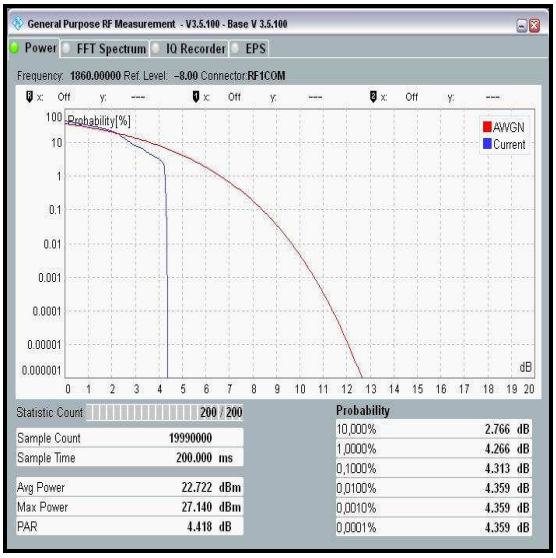


Top Channel / QPSK

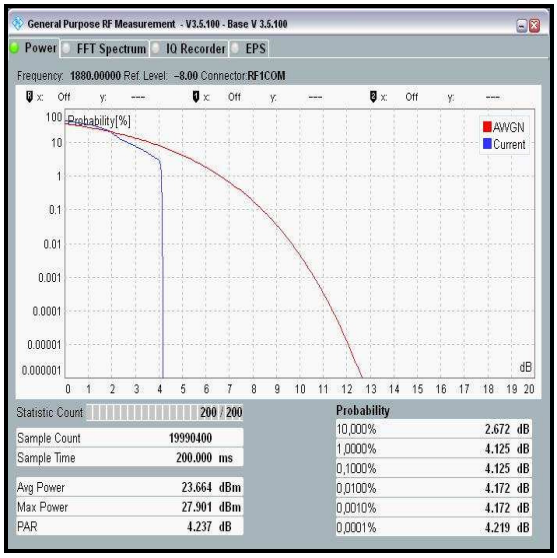
Transmitter Peak-To-Average Ratio (PAR) (continued)

Results: 20 MHz Channel Bandwidth / 16QAM

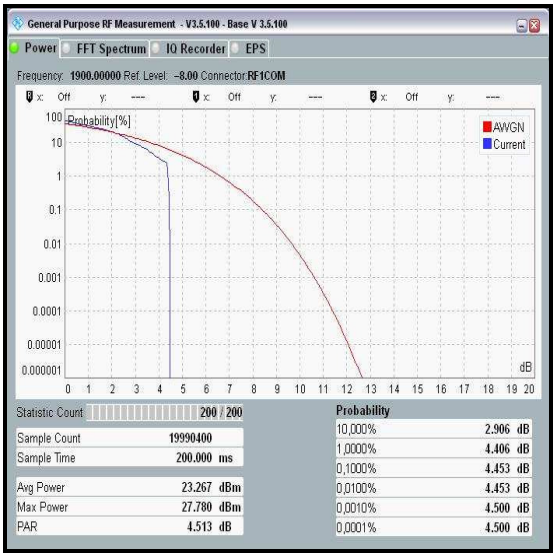
Channel	Resource Block(s)	Resource Block Offset	PAR (dB)	Ratio Limit (dB)	Margin (dB)	Result
Bottom	1	0	4.3	13.0	8.7	Complied
Middle	1	0	4.1	13.0	8.9	Complied
Top	1	0	4.5	13.0	8.5	Complied



Bottom Channel / 16QAM



Middle Channel / 16QAM



Top Channel / 16QAM

Transmitter Peak-To-Average Ratio (PAR) (continued)

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	CMW500	145923	05 Apr 2017	12
A2845	Attenuator	Radiall	R411.806.121	24325927	Calibrated before use	-
A2844	Attenuator	Radiall	R411.803.121	23404066	Calibrated before use	-
S0562	Power Supply	Thurlby Thandar	PL330QMD	054895	Calibrated before use	-
M1269	Multimeter	Fluke	179	90250210	13 May 2017	12
G0628	Signal Generator	Rohde & Schwarz	SMBV100A	261847	25 Jan 2017	12
M1835	Signal Analyser	Rohde & Schwarz	FSV30	103050	26 Feb 2017	12

5.2.4. Transmitter Occupied Bandwidth

Test Summary:

Test Engineer:	Keith Tucker	**Test Date:**	04 July 2016
Test Sample IMEI:	358640070269106		

FCC Reference:	Part 2.1049
Test Method Used:	KDB 971168 Section 4.2

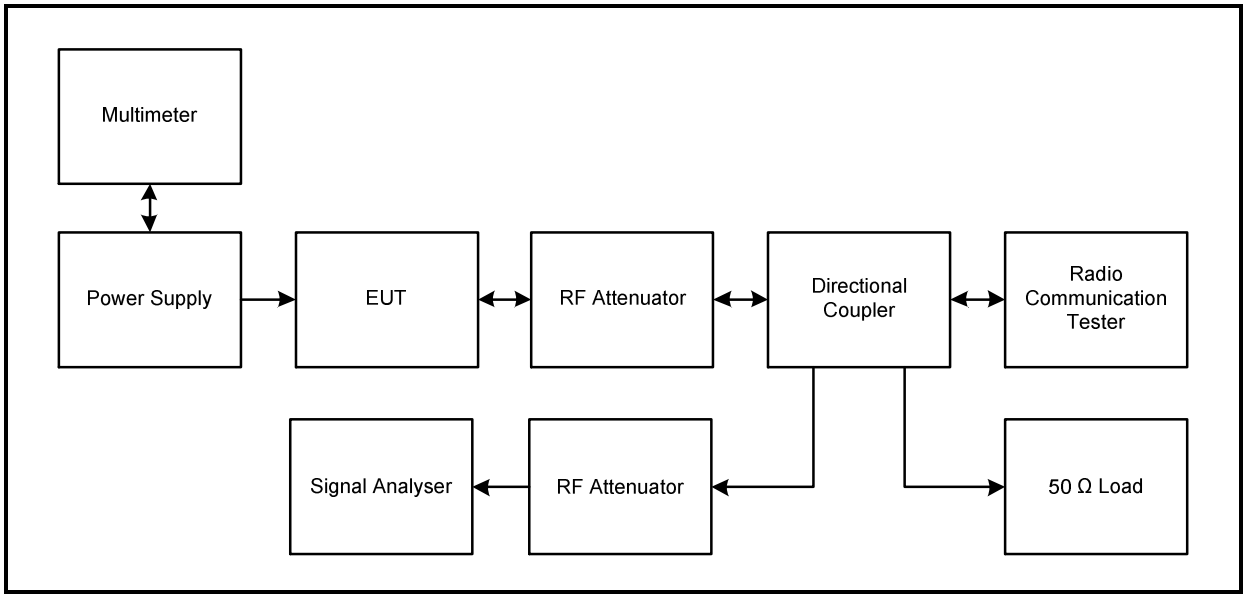
Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	46

Note(s):

1. Occupied bandwidth (99% bandwidth) was measured using a signal analyser occupied bandwidth function.
2. Measurements were performed with the EUT transmitting with QPSK and 16QAM modulation schemes, with resource blocks settings as detailed in section 4.3 of this report.
3. The RF port of the EUT was connected to the signal analyser via RF cables, directional coupler and suitable attenuation.

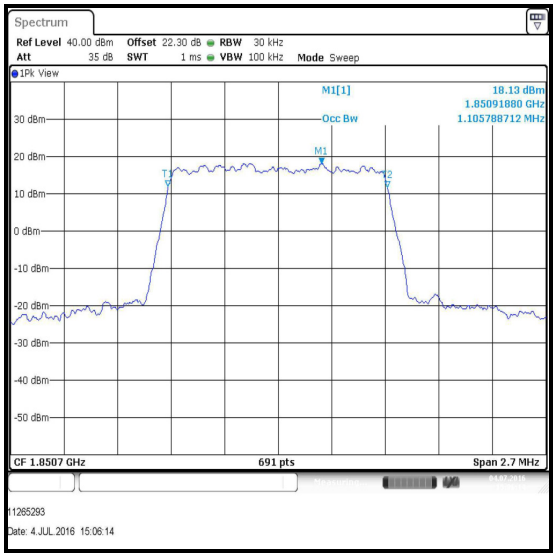
Test setup:



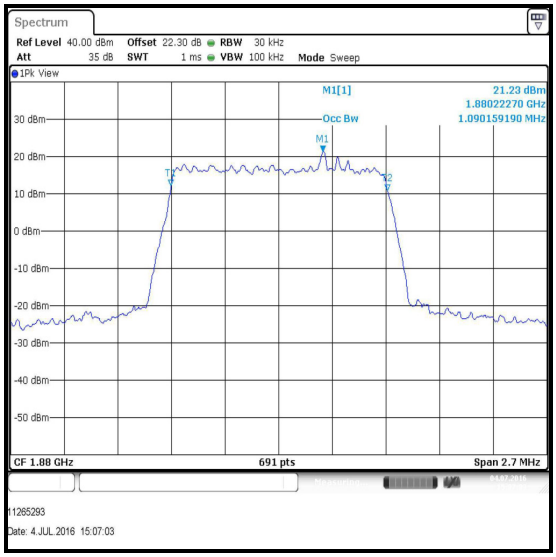
Transmitter Occupied Bandwidth (continued)

Results: 1.4 MHz Channel Bandwidth / QPSK

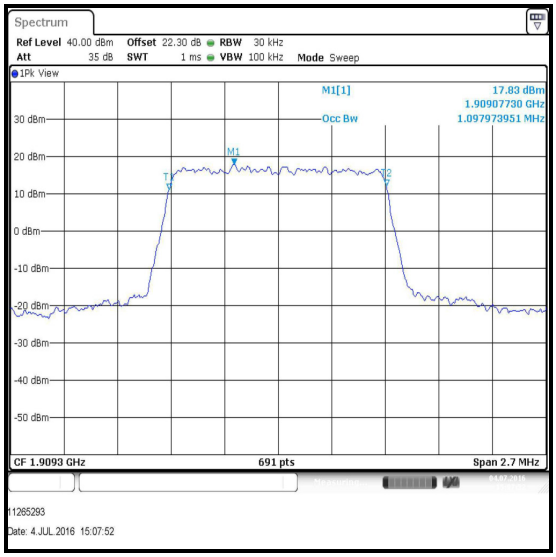
Channel	Resource Block(s)	Resource Block Offset	Resolution Bandwidth (kHz)	Video Bandwidth (kHz)	Occupied Bandwidth (MHz)
Bottom	6	0	30	100	1.106
Middle	6	0	30	100	1.090
Top	6	0	30	100	1.098



Bottom Channel / QPSK



Middle Channel / QPSK

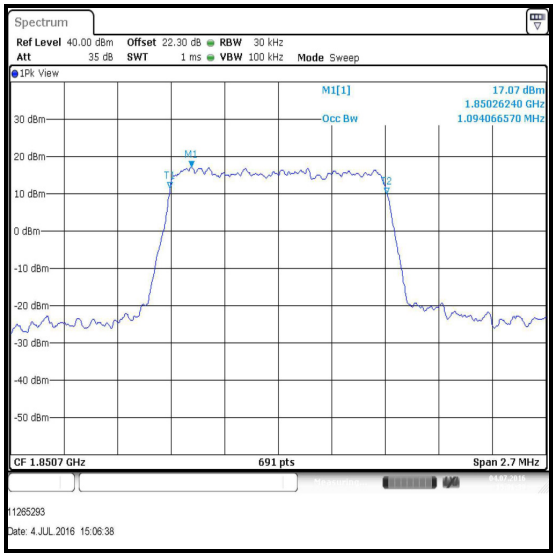


Top Channel / QPSK

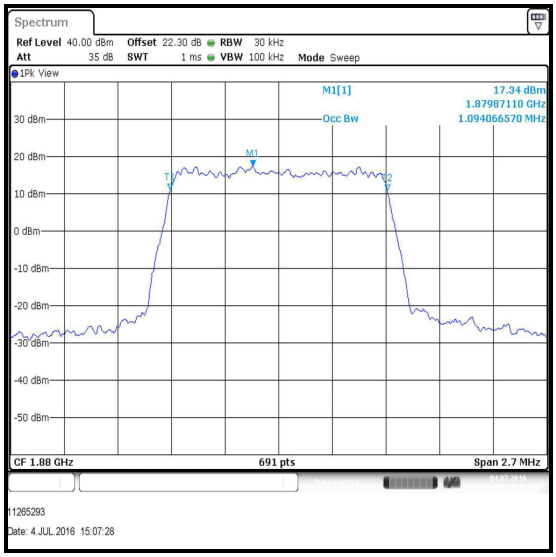
Transmitter Occupied Bandwidth (continued)

Results: 1.4 MHz Channel Bandwidth / 16QAM

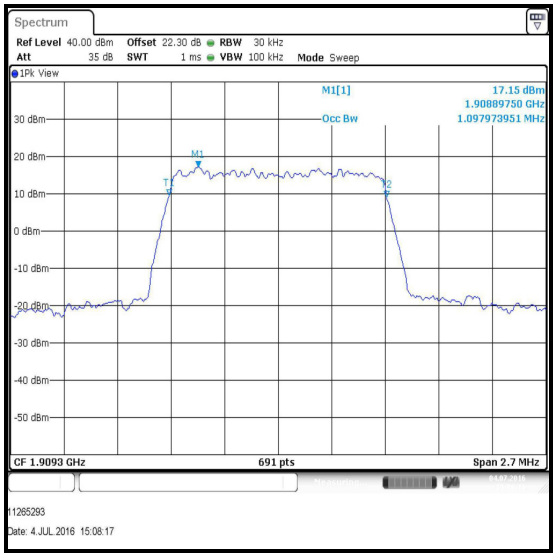
Channel	Resource Block(s)	Resource Block Offset	Resolution Bandwidth (kHz)	Video Bandwidth (kHz)	Occupied Bandwidth (MHz)
Bottom	6	0	30	100	1.094
Middle	6	0	30	100	1.094
Top	6	0	30	100	1.098



Bottom Channel / 16QAM



Middle Channel / 16QAM

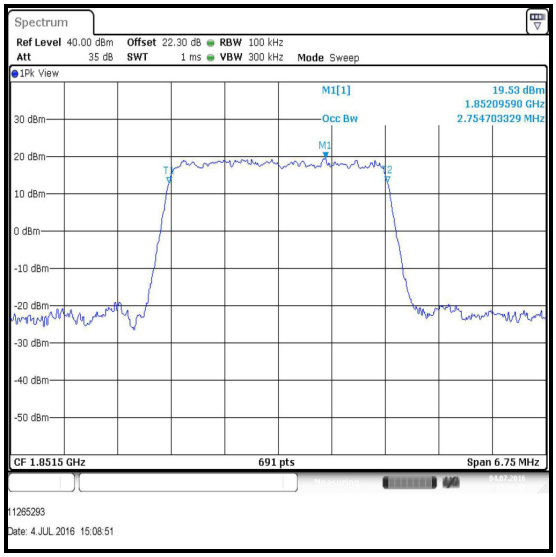


Top Channel / 16QAM

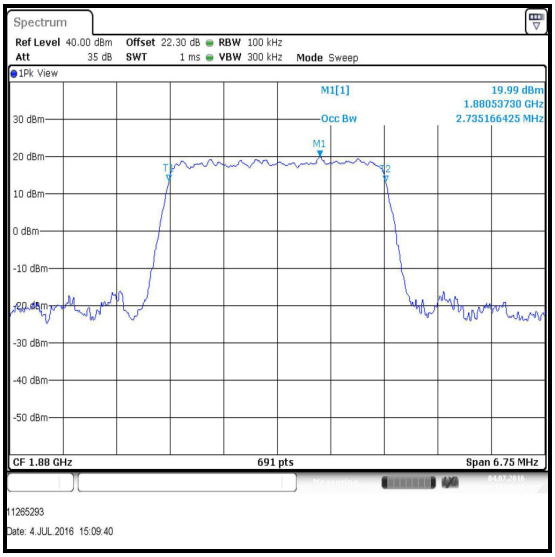
Transmitter Occupied Bandwidth (continued)

Results: 3 MHz Channel Bandwidth / QPSK

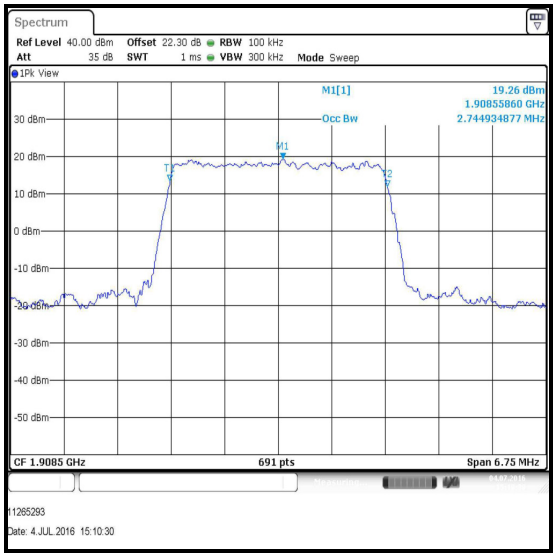
Channel	Resource Block(s)	Resource Block Offset	Resolution Bandwidth (kHz)	Video Bandwidth (kHz)	Occupied Bandwidth (MHz)
Bottom	15	0	100	300	2.755
Middle	15	0	100	300	2.735
Top	15	0	100	300	2.745



Bottom Channel / QPSK



Middle Channel / QPSK

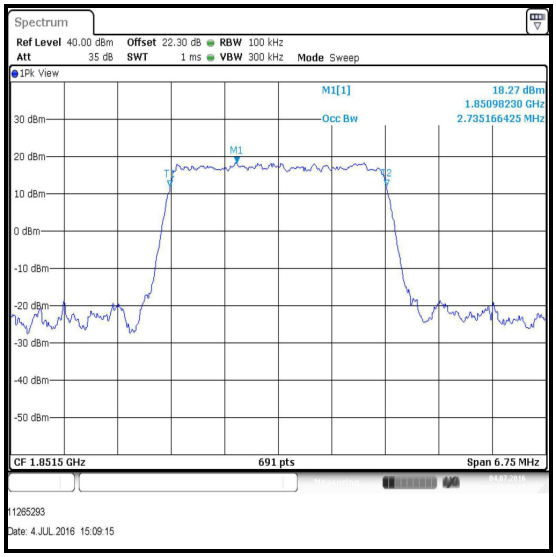


Top Channel / QPSK

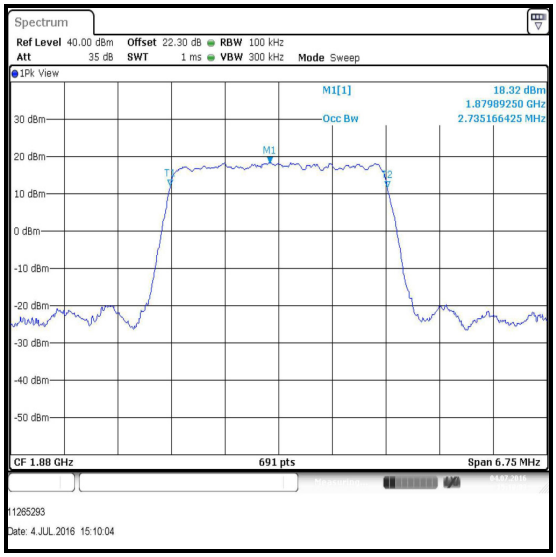
Transmitter Occupied Bandwidth (continued)

Results: 3 MHz Channel Bandwidth / 16QAM

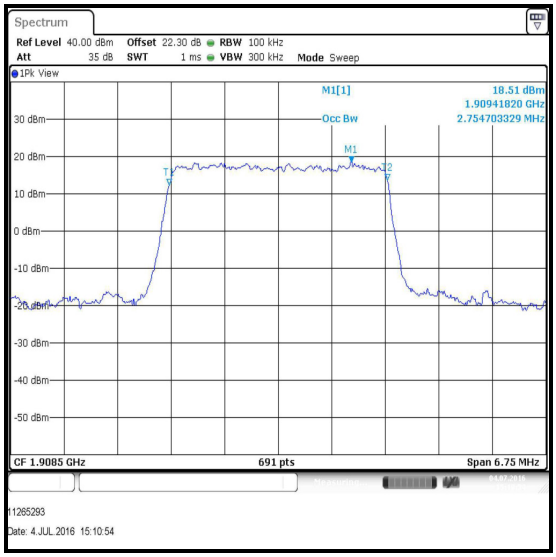
Channel	Resource Block(s)	Resource Block Offset	Resolution Bandwidth (kHz)	Video Bandwidth (kHz)	Occupied Bandwidth (MHz)
Bottom	15	0	100	300	2.735
Middle	15	0	100	300	2.735
Top	15	0	100	300	2.755



Bottom Channel / 16QAM



Middle Channel / 16QAM

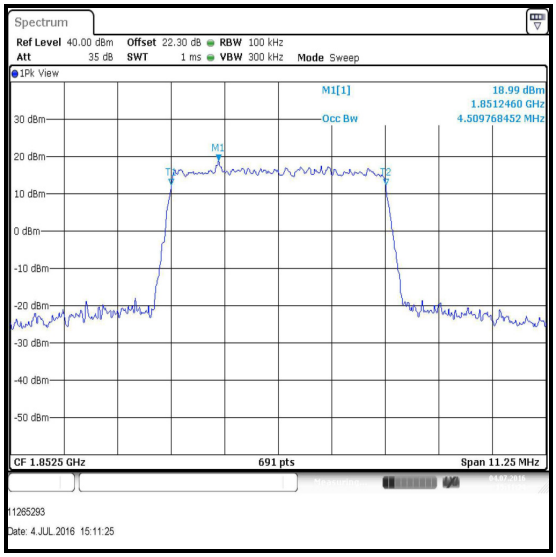


Top Channel / 16QAM

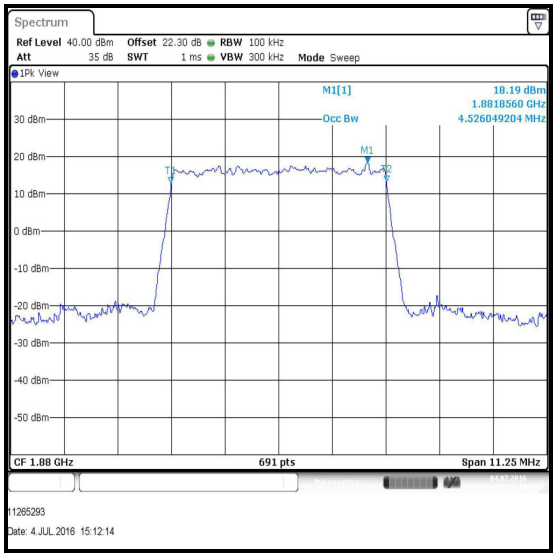
Transmitter Occupied Bandwidth (continued)

Results: 5 MHz Channel Bandwidth / QPSK

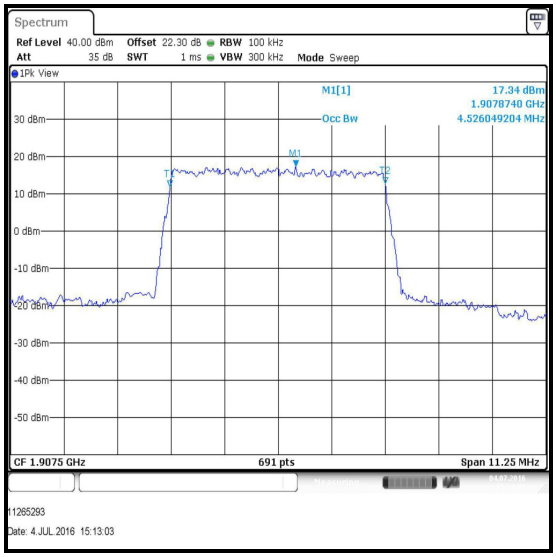
Channel	Resource Block(s)	Resource Block Offset	Resolution Bandwidth (kHz)	Video Bandwidth (kHz)	Occupied Bandwidth (MHz)
Bottom	25	0	100	300	4.510
Middle	25	0	100	300	4.526
Top	25	0	100	300	4.526



Bottom Channel / QPSK



Middle Channel / QPSK

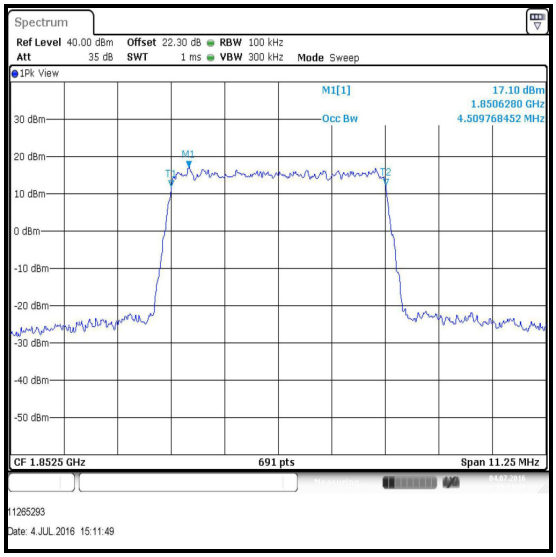


Top Channel / QPSK

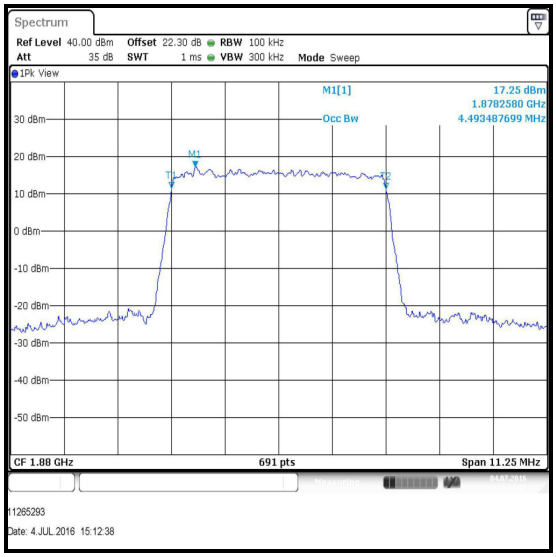
Transmitter Occupied Bandwidth (continued)

Results: 5 MHz Channel Bandwidth / 16QAM

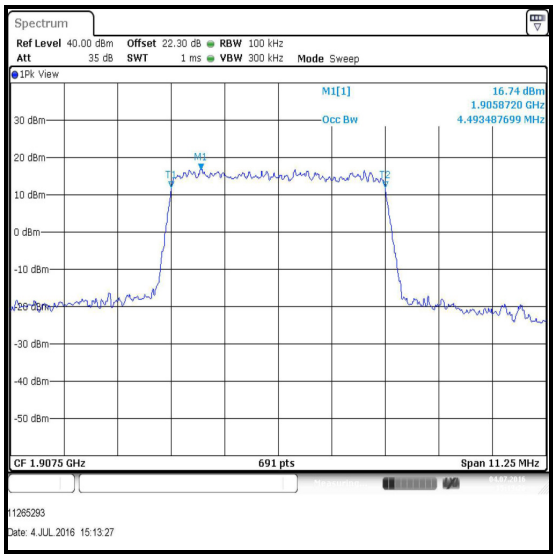
Channel	Resource Block(s)	Resource Block Offset	Resolution Bandwidth (kHz)	Video Bandwidth (kHz)	Occupied Bandwidth (MHz)
Bottom	25	0	100	300	4.510
Middle	25	0	100	300	4.493
Top	25	0	100	300	4.493



Bottom Channel / 16QAM



Middle Channel / 16QAM

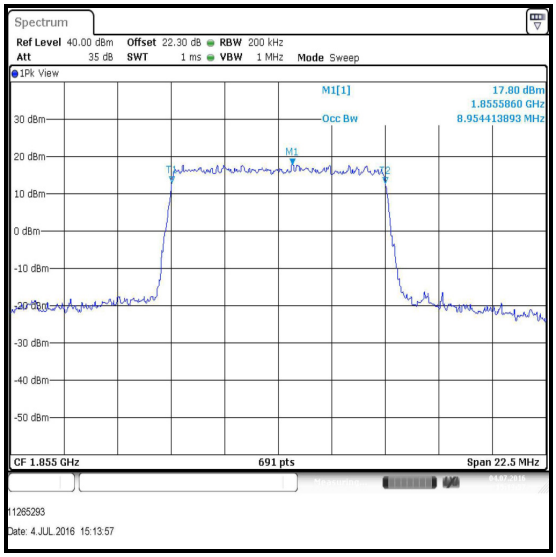


Top Channel / 16QAM

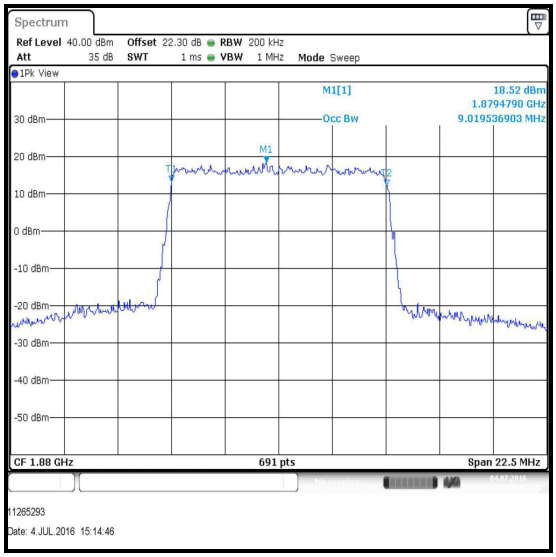
Transmitter Occupied Bandwidth (continued)

Results: 10 MHz Channel Bandwidth / QPSK

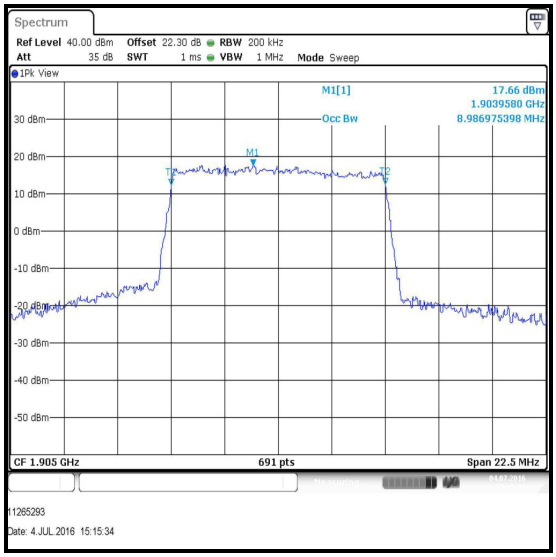
Channel	Resource Block(s)	Resource Block Offset	Resolution Bandwidth (kHz)	Video Bandwidth (kHz)	Occupied Bandwidth (MHz)
Bottom	50	0	200	1000	8.954
Middle	50	0	200	1000	9.020
Top	50	0	200	1000	8.987



Bottom Channel / QPSK



Middle Channel / QPSK



Top Channel / QPSK