TEST REPORT

Test Report No. : UL-RPT-RP10295085JD01I V2.0

Manufacturer	:	Sony Mobile Communications Inc.
FCC ID	:	PY7PM-0800
Technology	:	WLAN
Test Standard(s)	:	FCC Parts 15.207, 15.209(a), 15.403(i) & 15.407

1. This test report shall not be reproduced in full or partial, without the written approval of UL VS LTD.
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: 01 August 2014

Checked by:

Sarah Williams
Engineer, Radio Laboratory

Issued by :

pp
John Newell
Group Quality Manager
Basingstoke,
UL VS LTD

ilac-MRA UKAS TESTING 0644

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

UL VS LTD

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1. Customer Information

Company Name:	Sony Mobile Communications Inc.
Address:	Nya Vattentornet Mobilvägen 10 Lund 22188 Sweden

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR15.407 and 47CFR15.403
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart E (Unlicensed National Information Infrastructure Devices) – Sections 15.403 and 15.407
Specification Reference:	47CFR15.207 and 47CFR15.209
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart C (Intentional Radiators) - Sections 15.207 and 15.209
Site Registration:	FCC: 209735
Location of Testing:	UL VS LTD, Unit 3 Horizon, Wade Road, Kingsland Business Park, Basingstoke, Hampshire, RG24 8AH, United Kingdom
Test Dates:	13 June 2014 to 18 June 2014

2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Result
Part 15.207	Transmitter AC Conducted Emissions	✓
Part 15.403(i)	Transmitter 26 dB Emission Bandwidth	✓
Part 15.407(e)	Transmitter Minimum 6 dB Bandwidth (5.725-5.85 GHz band)	✓
Part 15.35(c)	Transmitter Duty Cycle	Note 1
Part 15.407(a)(1)(iv)	Transmitter Maximum Conducted Output Power (5.15-5.25 GHz band)	✓
Part 15.407(a)(2)	Transmitter Maximum Conducted Output Power (5.25-5.35 GHz & 5.47-5.725 GHz bands)	✓
Part 15.407(a)(3)	Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band)	✓
Part 15.407(a)(1)(iv)	Transmitter Peak Power Spectral Density (5.15-5.25 GHz band)	✓
Part 15.407(a)(2)	Transmitter Peak Power Spectral Density (5.25-5.35 GHz & 5.47-5.725 GHz bands)	✓
Part 15.407(a)(3)	Transmitter Peak Power Spectral Density (5.725-5.85 GHz band)	✓
Part 15.407(b)/ 15.209(a)	Transmitter Out of Band Radiated Emissions	✓
Part 15.407(b)/ 15.209(a)	Transmitter Band Edge Radiated Emissions	✓
Part 15.407(g)	Transmitter Frequency Stability (Temperature & Voltage Variation)	Note 2
Part 15.407(h)(1)	Transmitter Power Control	Note 3
Key to Results ✓ = Complied ✗ = Did not comply		

Note(s):

1. The measurement was performed to assist in the calculation of the level of average output power, power spectral density, peak excursion and emissions as the EUT employs pulsed operation.
2. Frequency stability is better than 20 ppm which ensures that the signal remains in the allocated bands under all operational conditions stated in the user manual.
3. Transmit Power Control was not tested as the maximum EIRP is less than 500 mW (27 dBm).

2.3. Methods and Procedures

Reference:	ANSI C63.4 (2009)
Title:	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
Reference:	ANSI C63.10 (2009)
Title:	American National Standard for Testing Unlicensed Wireless Devices
Reference:	KDB 789033 D02 General UNII Test Procedures New Rules v01 June 6, 2014
Title:	Guidelines for Compliance Testing of Unlicensed National Inforamtion Infrastructure (U-NII) Devices – Part 15, Subpart E

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 specifications identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	Sony
IMEI:	004402452705282 *(Radiated sample)*
Serial Number:	CB5A1Z7PPD
Hardware Version Number:	A
Software Version Number:	ATPV: 1283-9868, 0_25_3_16_A
FCC ID:	PY7PM-0800

Brand Name:	Sony
IMEI:	004402452706116 *(Conducted sample)*
Serial Number:	CB5A1Z7PHB
Hardware Version Number:	A
Software Version Number:	ATPV: 1283-9868, 0_25_3_16_A
FCC ID:	PY7PM-0800

Brand Name:	Sony
Description:	AC Charger
Model Name or Number:	EP880

Brand Name:	Monoprice
Description:	MHL Cable
Model Name or Number:	Not marked

Brand Name:	Sony
Description:	MHL Adaptor
Model Name or Number:	IM750

Brand Name:	Sony
Description:	USB Cable
Model Name or Number:	EC803

Brand Name:	Sony
Description:	Deskstand
Model Name or Number:	DK43

Identification of Equipment Under Test (EUT) (continued)

Brand Name:	Sony
Description:	PHF
Model Name or Number:	MH410c

3.2. Description of EUT

The equipment under test (EUT) was a GSM/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n/ac + NFC & ANT+.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Technology Tested:	WLAN (IEEE 802.11a,n,ac) / U-NII		
Type of Unit:	Transceiver		
Modulation:	BPSK, QPSK, 16QAM, 64QAM & 256QAM		
Data rates:	802.11a	6, 9, 12, 18, 24, 36 ,48 & 54 Mbps	
	802.11n HT20	MCS0 to MCS7 (1 spatial stream) GI = 800 ns or 400 ns	
	802.11n HT40	MCS0 to MCS7 (1 spatial stream) GI = 800 ns or 400 ns	
	802.11ac VHT20	MCS0 to MCS8 (1 spatial stream) GI = 800 ns or 400 ns	
	802.11ac VHT40	MCS0 to MCS9 (1 spatial stream) GI = 800 ns or 400 ns	
	802.11ac VHT80	MCS0 to MCS9 (1 spatial stream) GI = 800 ns or 400 ns	
Power Supply Requirement(s):	Nominal	3.8 VDC via 120 VAC 60 Hz adaptor	
Antenna Gains:	5.15 to 5.35 GHz	-1.5 dBi	
	5.47 to 5.725 GHz	-2.9 dBi	
	5.725 to 5.85 GHz	-1.0 dBi	
Maximum Conducted Output Power:	20 MHz	16.6 dBm	
	40 MHz	14.3 dBm	
	80 MHz	13.8 dBm	
Channel Spacing:	20 MHz		
Transmit Frequency Band:	5150 MHz to 5250 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	36	5180
	Middle	40	5200
	Top	48	5240
Transmit Frequency Band:	5250 MHz to 5350 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	52	5260
	Middle	56	5280
	Top	64	5320

Additional Information Related to Testing (continued)

Transmit Frequency Band:	5470 MHz to 5725 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	100	5500
	Middle	116	5580
	Top	140	5700
Transmit Frequency Band:	5725 MHz to 5850 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	149	5745
	Middle	157	5785
	Top	165	5825
Channel Spacing:	40 MHz		
Transmit Frequency Band:	5150 MHz to 5250 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	38	5190
	Top	46	5230
Transmit Frequency Band:	5250 MHz to 5350 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	54	5270
	Top	62	5310
Transmit Frequency Band:	5470 MHz to 5725 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	102	5510
	Middle	110	5550
	Top	134	5670
Transmit Frequency Band:	5725 MHz to 5850 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	151	5755
	Top	159	5795

Additional Information Related to Testing (continued)

Channel Spacing:	80 MHz		
Transmit Frequency Band:	5150 MHz to 5250 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Single	42	5210
Transmit Frequency Band:	5250 MHz to 5350 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Single	58	5290
Transmit Frequency Band:	5470 MHz to 5725 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Single	106	5530
Transmit Frequency Band:	5725 MHz to 5850 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Single	155	5775

3.5. Support Equipment

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

Description:	Laptop
Brand Name:	Dell
Model Name or Number:	E5410
Serial Number:	UL Number 00763

Description:	2 GB Micro SD Card
Brand Name:	SanDisk
Model Name or Number:	Not marked

Brand Name:	Logik
Description:	22” High Definition Television
Model Name or Number:	L22FE12A
Serial Number:	1309020661

Description:	Test jig
Brand Name:	Not marked
Model Name or Number:	Not marked
Serial Number:	Not marked

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

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

- Continuously transmitting with a modulated carrier at maximum power on the bottom, middle and top channels as required using the supported data rates/modulation types.

4.2. Configuration and Peripherals

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

- Controlled using a bespoke application on the laptop PC supplied by the customer. The application was used to enable continuous transmission and receive modes and to select the test channels, data rates and modulation schemes as required.
- All supported modes and channel widths were initially investigated on one channel. The modes that produced the highest power and widest bandwidth for all bands were:
    - Highest power
        - 802.11a – QPSK / 12 Mbps
        - 802.11n HT20 – BPSK / 6.5 Mbps / MCS0 (GI = 800 ns)
        - 802.11n HT40 – BPSK / 13.5 Mbps / MCS0 (GI = 800 ns)
        - 802.11ac VHT20 – BPSK / 6.5 Mbps / MCS0 (GI = 800 ns)
        - 802.11ac VHT40 – QPSK / 27 Mbps / MCS1 (GI = 800 ns)
        - 802.11ac VHT80 – QPSK / 58.5 Mbps / MCS1 (GI = 800 ns)
    - Highest power spectral density
        - 802.11a – 64QAM / 54 Mbps
        - 802.11n HT20 – 64QAM / 58.5 Mbps / MCS6 (GI = 800 ns)
        - 802.11n HT40 – QPSK / 40.5 Mbps / MCS2 (GI = 800 ns)
        - 802.11ac VHT20 – 64QAM / 52 Mbps / MCS5 (GI = 800 ns)
        - 802.11ac VHT40 – 64QAM / 108 Mbps / MCS5 (GI = 800 ns)
        - 802.11ac VHT80 – QPSK / 87.8 Mbps / MCS2 (GI = 800 ns)
    - Widest bandwidth
        - 802.11a – QPSK / 12 Mbps
        - 802.11n HT20 – BPSK / 6.5 Mbps / MCS0 (GI = 800 ns)
        - 802.11n HT40 – BPSK / 13.5 Mbps / MCS0 (GI = 800 ns)
        - 802.11ac VHT20 – BPSK / 6.5 Mbps / MCS0 (GI = 800 ns)
        - 802.11ac VHT40 – QPSK / 27 Mbps / MCS1 (GI = 800 ns)
        - 802.11ac VHT80 – QPSK / 58.5 Mbps / MCS1 (GI = 800 ns)

    Pre-scan results for all modes are archived on the Company server and available for inspection if required.

Configuration and Peripherals (continued)

- All supported modes and channel widths were initially investigated on one channel. The modes that produced the narrowest bandwidth for the 5725 to 5850 MHz band were:
    - Narrowest bandwidth
        - 802.11a – BPSK / 6 Mbps
        - 802.11n HT20 – BPSK / 6.5 Mbps / MCS0 (GI = 800 ns)
        - 802.11n HT40 – BPSK / 13.5 Mbps / MCS0 (GI = 800 ns)
        - 802.11ac VHT20 – BPSK / 6.5 Mbps / MCS0 (GI = 800 ns)
        - 802.11ac VHT40 – QPSK / 27 Mbps / MCS1 (GI = 800 ns)
        - 802.11ac VHT80 – QPSK / 87.8 Mbps / MCS2 (GI = 800 ns)
- RF cables and attenuators connecting the test equipment to the EUT were calibrated before use and the calibration data incorporated into the conducted measurement results.
- Transmitter spurious emissions were performed with the EUT transmitting with a data rate of 12 Mbps (802.11a). This was found to be the worst case modulation scheme with regards to emissions after preliminary investigations and, as this mode emits the highest transmit output power level, it was deemed to be the worst case.
- Transmitter radiated spurious emission tests were performed with the following configurations, employing all available accessories:
    - Configuration 1 – Handset with the AC charger, USB Cable, MHL cable (terminated in to a television), MHL adaptor and PHF
    - Configuration 2 – Handset with the AC charger, Deskstand and PHF

  Pre-scans below 1 GHz were performed in both configurations 1 and 2, with final measurements limited to the configuration which provided worst case results. Pre-scans above 1 GHz were performed in the configuration that employed the most accessories (Configuration 1), with any final measurements being performed in both configurations.
- The conducted sample with IMEI 004402452706116 was used for 26 dB bandwidth, minimum 6 dB bandwidth, duty cycle, maximum output power and peak power spectral density tests.
- The radiated sample with IMEI 004402452705282 was used for all other tests.

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 AC Conducted Spurious Emissions

Test Summary:

Test Engineer:	Georgios Vrezas	**Test Date:**	17 June 2014
Test Sample IMEI:	004402452705282		

FCC Reference:	Part 15.207
Test Method Used:	As detailed in ANSI C63.10 Section 6.2 referencing ANSI C63.4

Environmental Conditions:

Temperature (°C):	21
Relative Humidity (%):	50

Transmitter AC Conducted Spurious Emissions (continued)

Results: Live / Quasi Peak

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.335	Live	18.3	59.3	41.0	Complied
0.447	Live	16.4	56.9	40.5	Complied
0.515	Live	13.6	56.0	42.4	Complied
3.251	Live	10.2	56.0	45.8	Complied
5.024	Live	10.8	60.0	49.2	Complied
14.613	Live	11.7	60.0	48.3	Complied

Results: Live / Average

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.254	Live	12.3	51.6	39.3	Complied
0.285	Live	11.9	50.7	38.8	Complied
0.596	Live	9.7	46.0	36.3	Complied
2.189	Live	5.5	46.0	40.5	Complied
7.989	Live	7.9	50.0	42.1	Complied
24.873	Live	7.8	50.0	42.2	Complied

Transmitter AC Conducted Spurious Emissions (continued)

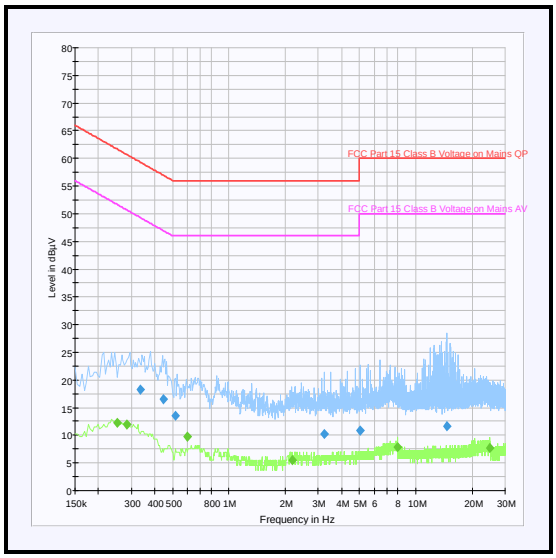
Results: Neutral / Quasi Peak

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.240	Neutral	23.0	62.1	39.1	Complied
0.443	Neutral	18.9	57.0	38.1	Complied
0.515	Neutral	17.3	56.0	38.7	Complied
4.965	Neutral	15.6	56.0	40.4	Complied
5.685	Neutral	15.7	60.0	44.3	Complied
12.152	Neutral	15.4	60.0	44.6	Complied

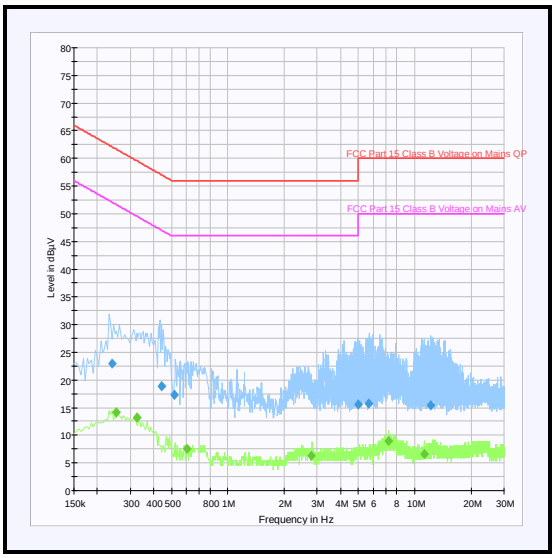
Results: Neutral / Average

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.254	Neutral	14.2	51.6	37.4	Complied
0.326	Neutral	13.2	49.6	36.4	Complied
0.605	Neutral	7.5	46.0	38.5	Complied
2.792	Neutral	6.2	46.0	39.8	Complied
7.220	Neutral	9.0	50.0	41.0	Complied
11.288	Neutral	6.5	50.0	43.5	Complied

Transmitter AC Conducted Spurious Emissions (continued)



Live



Neutral

Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1625	Thermohygrometer	JM Handelspunkt	30.5015.06	None stated	31 Dec 2014	12
A004	LISN	Rohde & Schwarz	ESH3-Z5	890604/027	18 Nov 2014	12
A1830	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100668	27 Feb 2015	12
M1263	Test Receiver	Rohde & Schwarz	ESIB 7	100265	14 Oct 2014	12

5.2.2. Transmitter 26 dB Emission Bandwidth

Test Summary:

Test Engineer:	Nick Steele	**Test Dates:**	15 June 2014 & 16 June 2014
Test Sample IMEI:	004402452706116		

FCC Reference:	Part 15.403(i)
Test Method Used:	As detailed in KDB 789033 D02 Section II.C.1.

Environmental Conditions:

Temperatures (°C):	23
Relative Humidity (%):	47

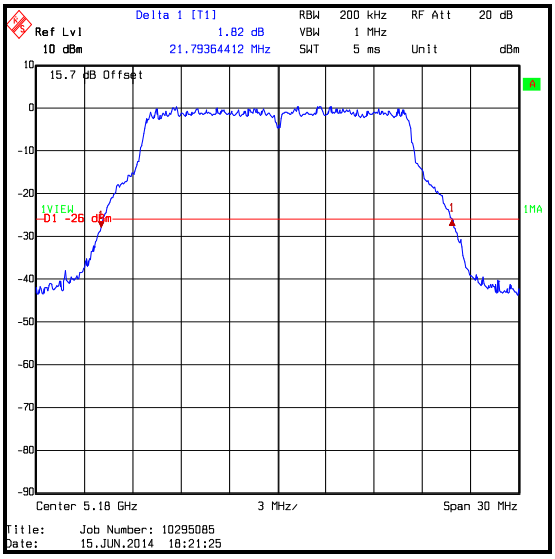
Note(s):

1. All configurations supported by the EUT were investigated on the one channel in accordance with KDB 789033 Section II.C.1. Emission Bandwidth (EBW) test procedure. The data rates that produced the widest bandwidth and therefore deemed worst case were:
    - 802.11a – QPSK / 12 Mbps
    - 802.11n HT20 – BPSK / 6.5 Mbps / MCS0 (GI = 800 ns)
    - 802.11n HT40 – BPSK / 13.5 Mbps / MCS0 (GI = 800 ns)
    - 802.11ac VHT20 – BPSK / 6.5 Mbps / MCS0 (GI = 800 ns)
    - 802.11ac VHT40 – QPSK / 27 Mbps / MCS1 (GI = 800 ns)
    - 802.11ac VHT80 – QPSK / 58.5 Mbps / MCS1 (GI = 800 ns)
2. Final measurements were performed in each supported operating band using the above configurations on the bottom, middle and top or single channels.
3. Plots for all data rates are archived on the Company server and available for inspection upon request.
4. The test receiver was connected to the RF port on the EUT using suitable attenuation and RF cable.

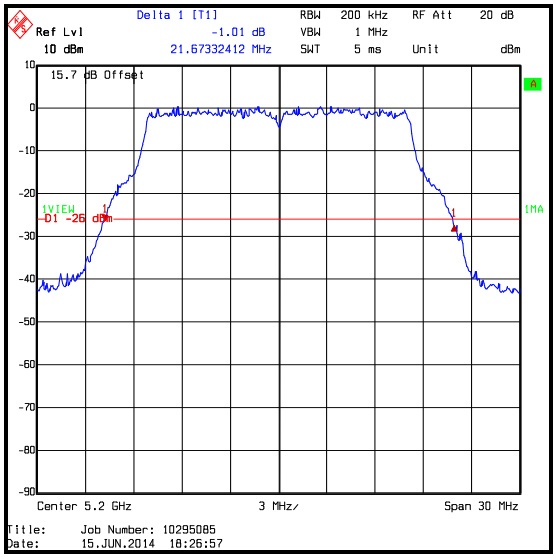
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11a / 20 MHz / 5.15-5.25 GHz band

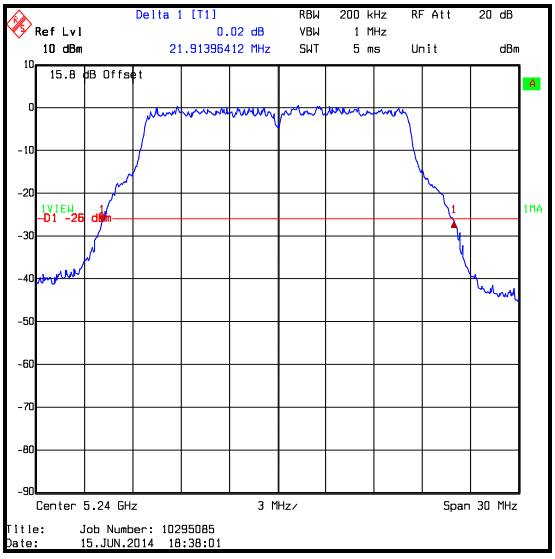
Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps	26 dB Emission Bandwidth (MHz)
Bottom	5180	QPSK	12	21.794
Middle	5200	QPSK	12	21.673
Top	5240	QPSK	12	21.914



Bottom Channel



Middle Channel

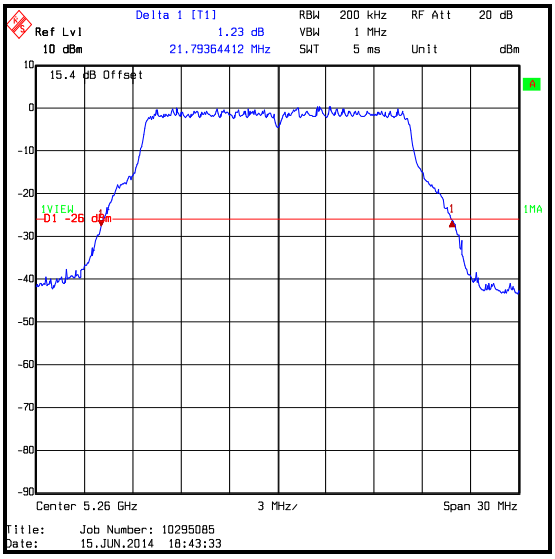


Top Channel

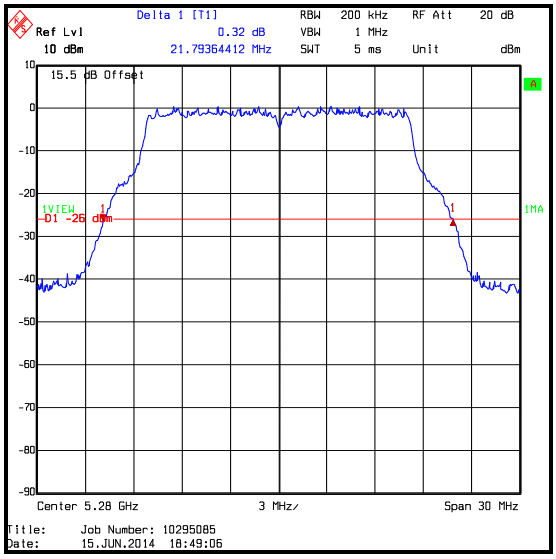
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11a / 20 MHz / 5.25-5.35 GHz band

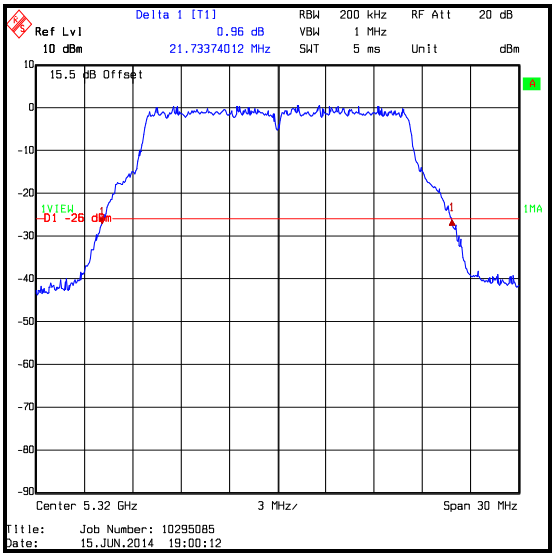
Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps	26 dB Emission Bandwidth (MHz)
Bottom	5260	QPSK	12	21.794
Middle	5280	QPSK	12	21.794
Top	5320	QPSK	12	21.734



Bottom Channel



Middle Channel

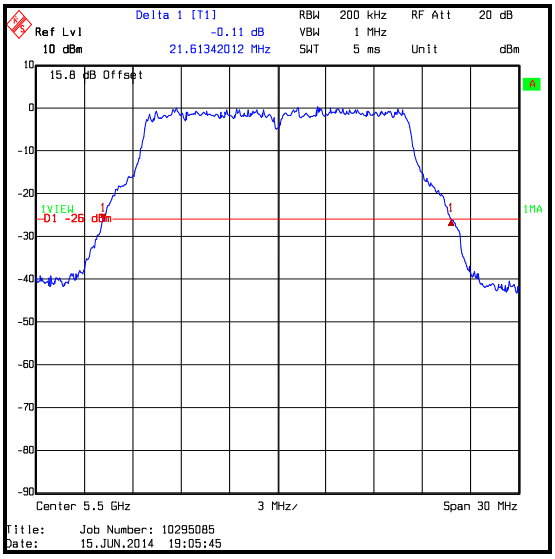


Top Channel

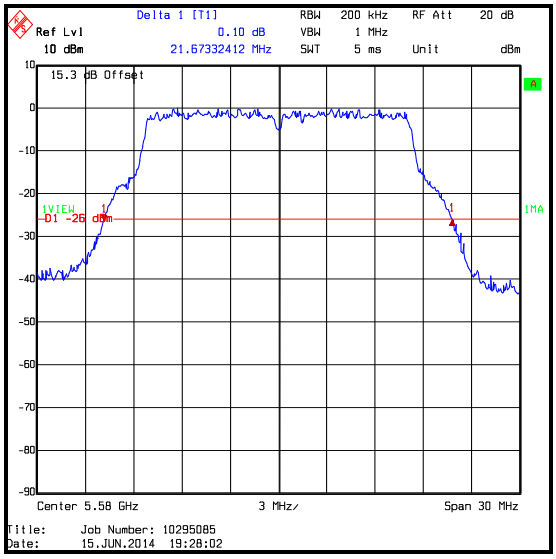
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11a / 20 MHz / 5.47-5.725 GHz band

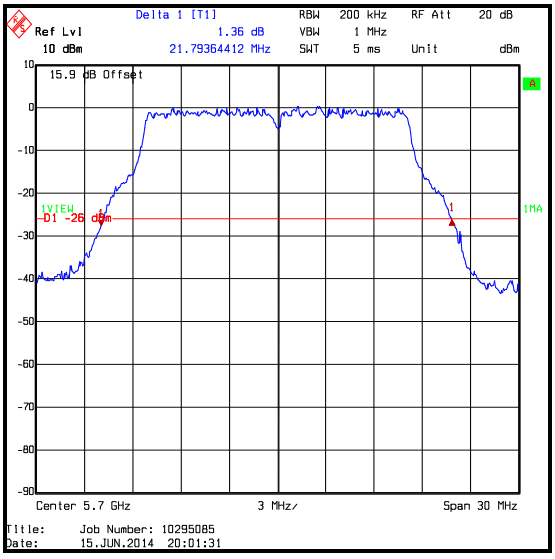
Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps	26 dB Emission Bandwidth (MHz)
Bottom	5500	QPSK	12	21.613
Middle	5580	QPSK	12	21.673
Top	5700	QPSK	12	21.794



Bottom Channel



Middle Channel

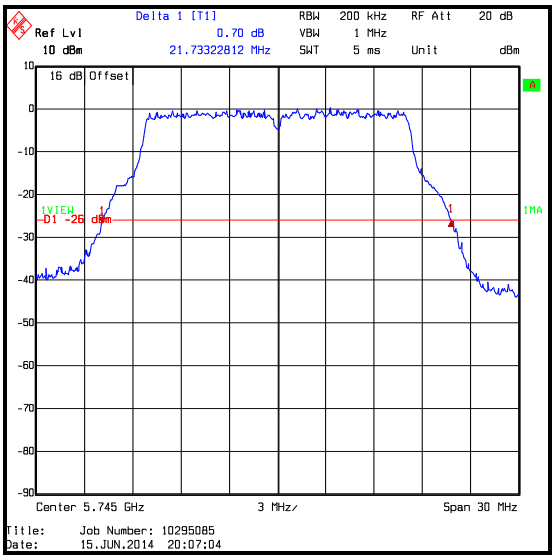


Top Channel

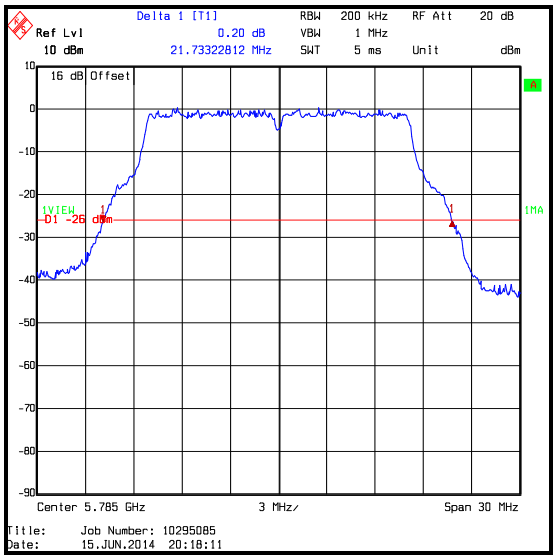
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11a / 20 MHz / 5.725-5.85 GHz band

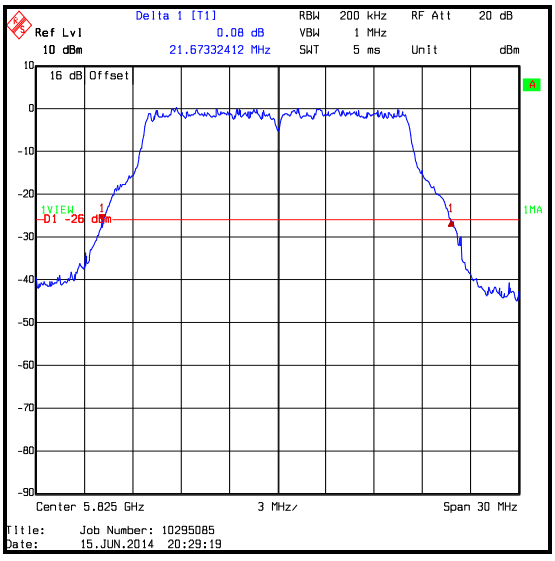
Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps	26 dB Emission Bandwidth (MHz)
Bottom	5745	QPSK	12	21.733
Middle	5785	QPSK	12	21.733
Top	5825	QPSK	12	21.673



Bottom Channel



Middle Channel

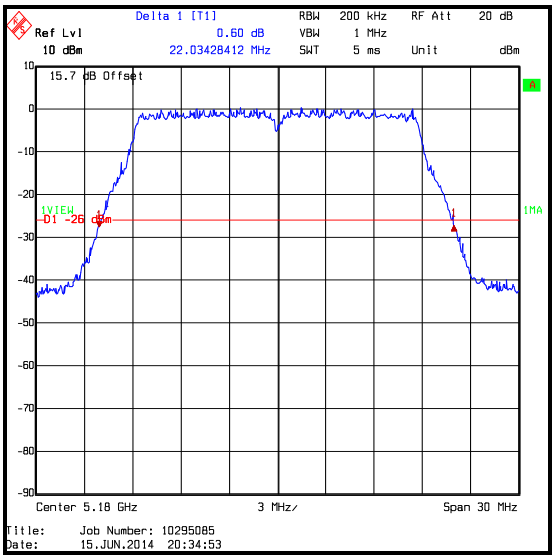


Top Channel

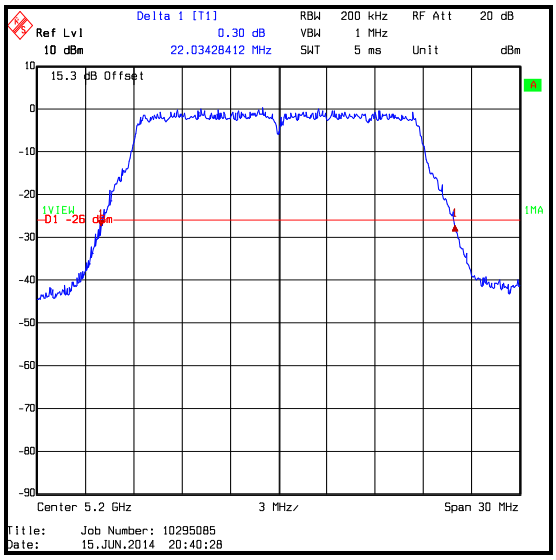
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11n / 20 MHz / 5.15-5.25 GHz band

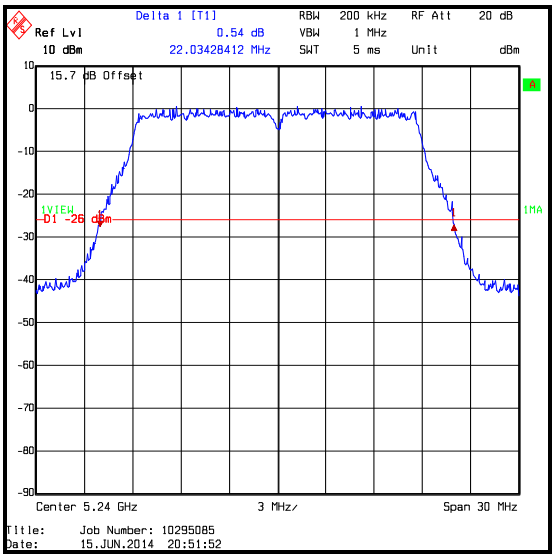
Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Bottom	5180	BPSK	6.5 / 0	22.034
Middle	5200	BPSK	6.5 / 0	22.034
Top	5240	BPSK	6.5 / 0	22.034



Bottom Channel



Middle Channel

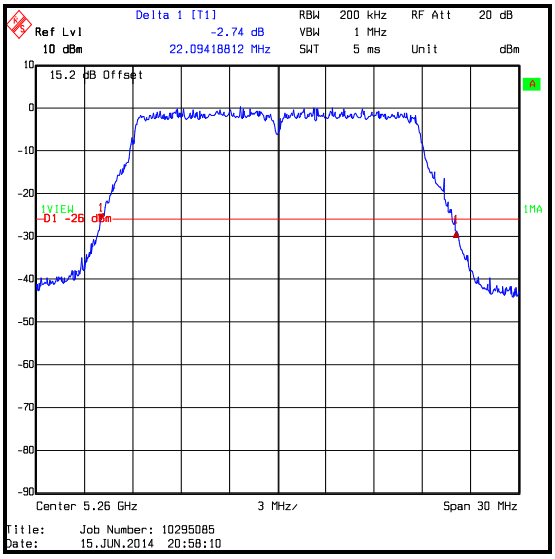


Top Channel

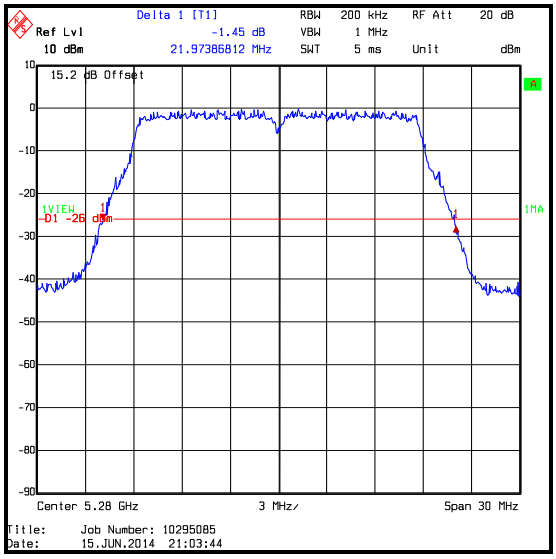
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11n / 20 MHz / 5.25-5.35 GHz band

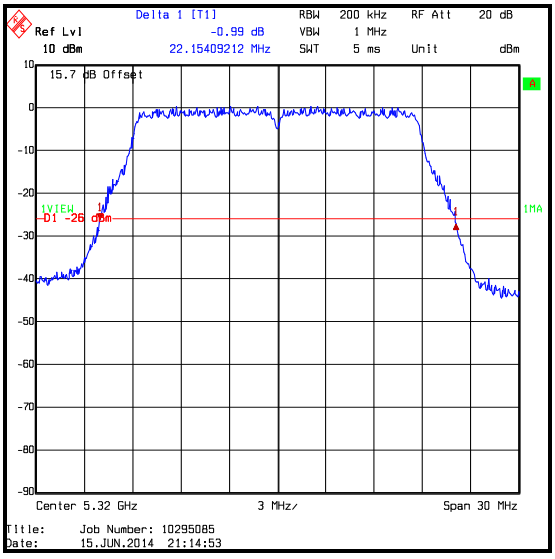
Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Bottom	5260	BPSK	6.5 / 0	22.094
Middle	5280	BPSK	6.5 / 0	21.974
Top	5320	BPSK	6.5 / 0	22.154



Bottom Channel



Middle Channel

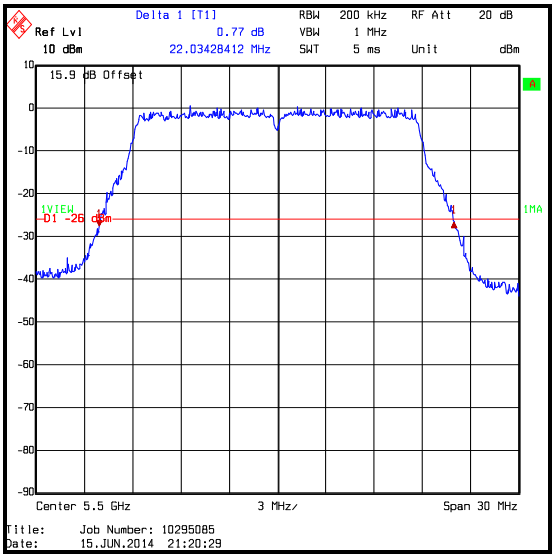


Top Channel

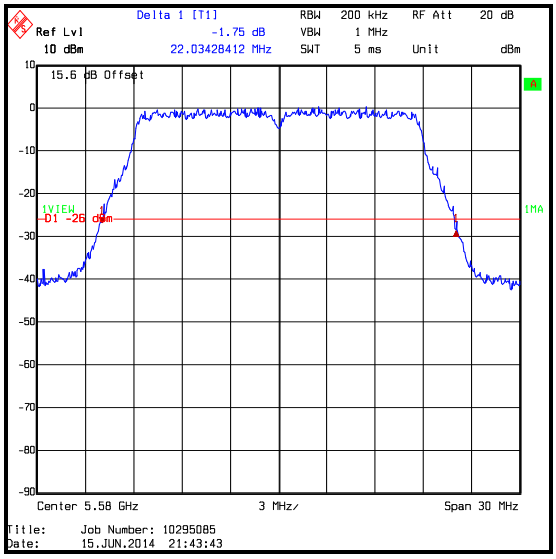
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11n / 20 MHz / 5.47-5.725 GHz band

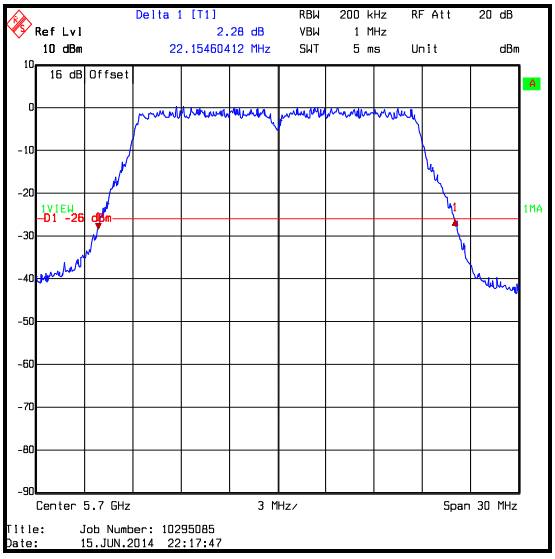
Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Bottom	5500	BPSK	6.5 / 0	22.034
Middle	5580	BPSK	6.5 / 0	22.034
Top	5700	BPSK	6.5 / 0	22.155



Bottom Channel



Middle Channel

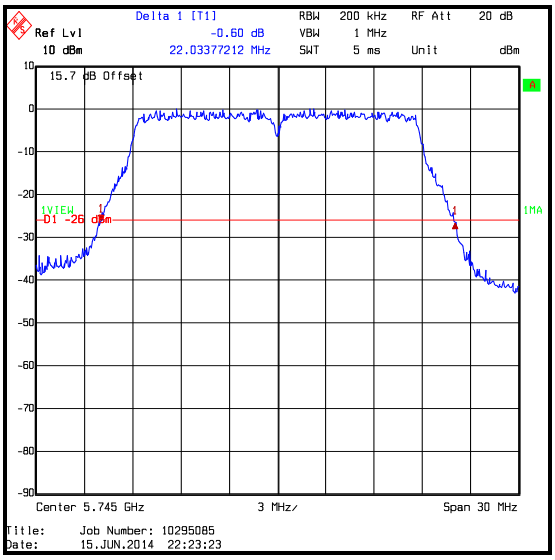


Top Channel

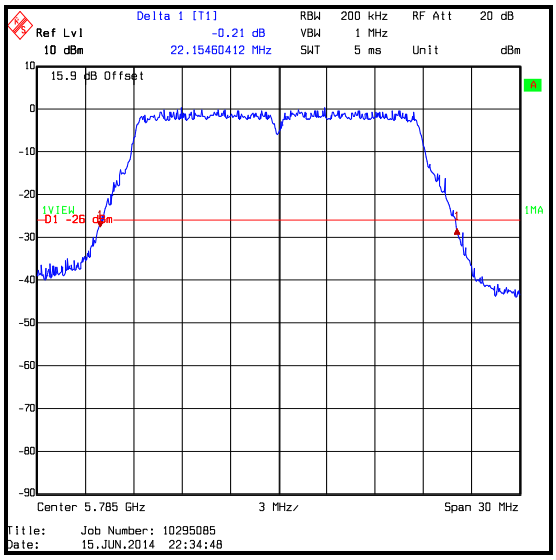
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11n / 20 MHz / 5.725-5.85 GHz band

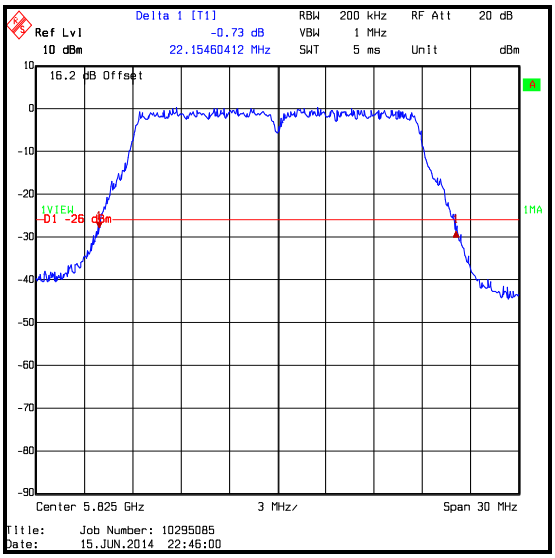
Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Bottom	5745	BPSK	6.5 / 0	22.034
Middle	5785	BPSK	6.5 / 0	22.155
Top	5825	BPSK	6.5 / 0	22.155



Bottom Channel



Middle Channel

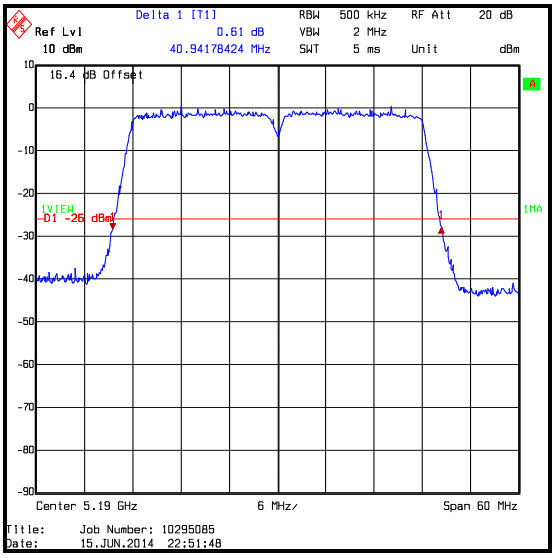


Top Channel

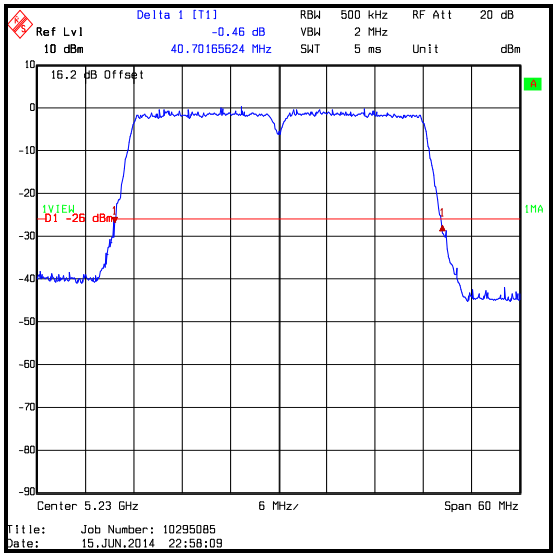
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11n / 40 MHz / 5.15-5.25 GHz band

Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Bottom	5190	BPSK	13.5 / 0	40.942
Top	5230	BPSK	13.5 / 0	40.702



Bottom Channel

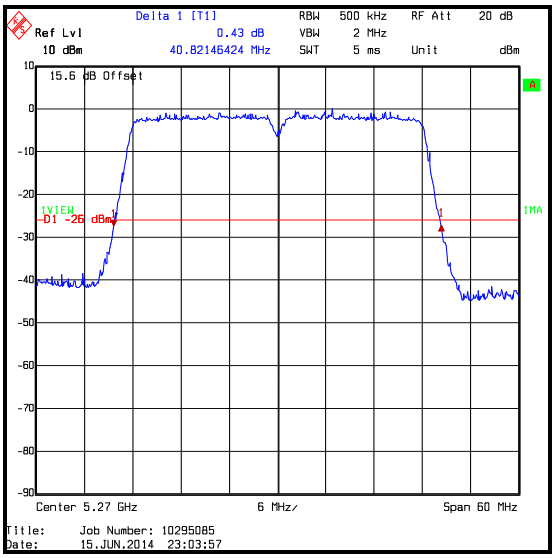


Top Channel

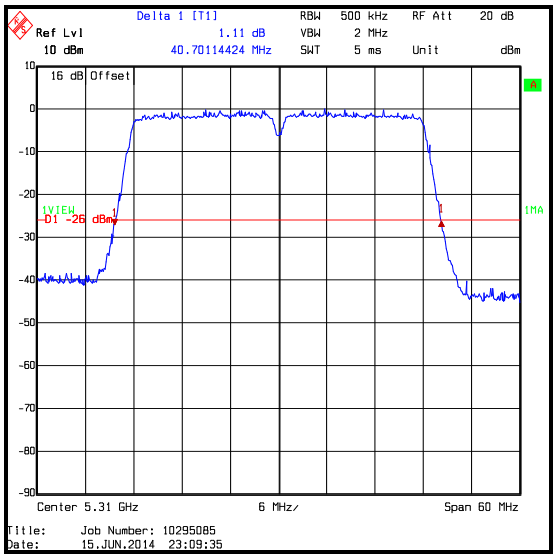
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11n / 40 MHz / 5.25-5.35 GHz band

Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Bottom	5270	BPSK	13.5 / 0	40.821
Top	5310	BPSK	13.5 / 0	40.701



Bottom Channel

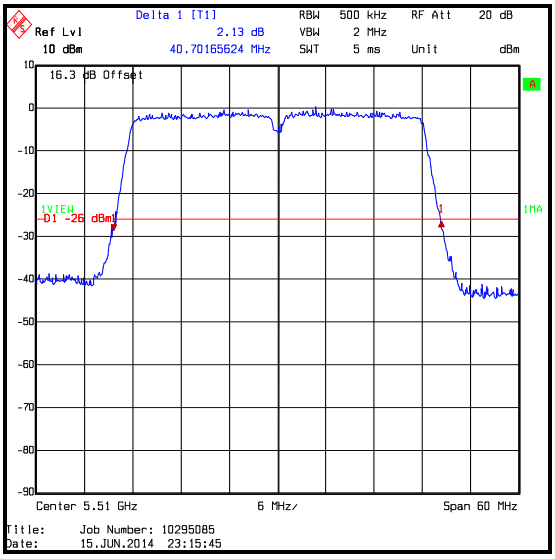


Top Channel

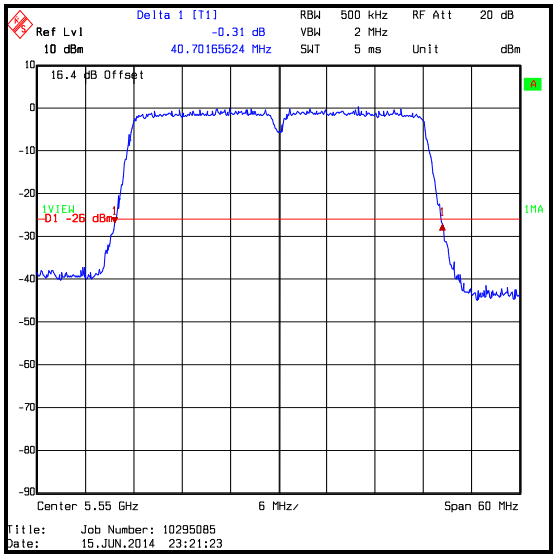
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11n / 40 MHz / 5.47-5.725 GHz band

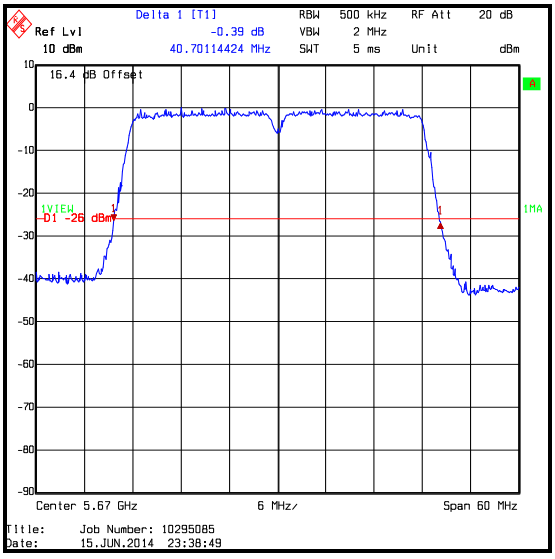
Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Bottom	5510	BPSK	13.5 / 0	40.702
Middle	5550	BPSK	13.5 / 0	40.702
Top	5670	BPSK	13.5 / 0	40.701



Bottom Channel



Middle Channel

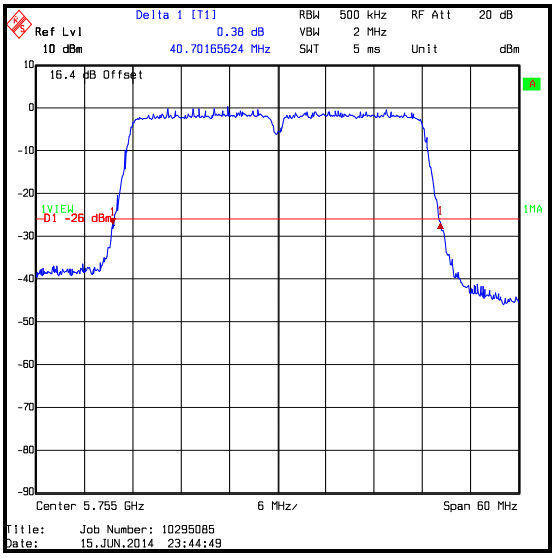


Top Channel

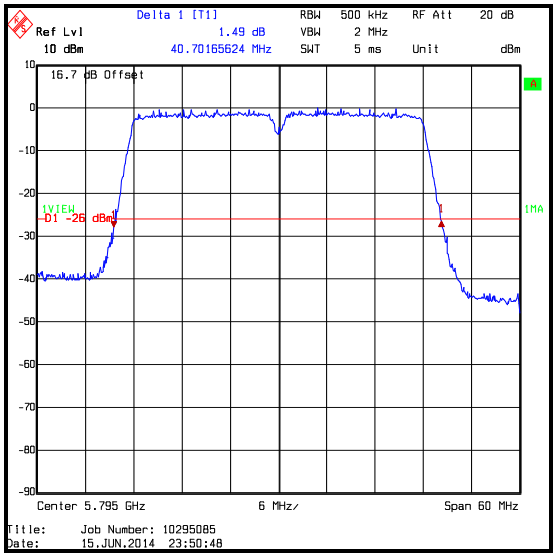
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11n / 40 MHz / 5.725-5.85 GHz band

Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Bottom	5755	BPSK	13.5 / 0	40.702
Top	5795	BPSK	13.5 / 0	40.702



Bottom Channel

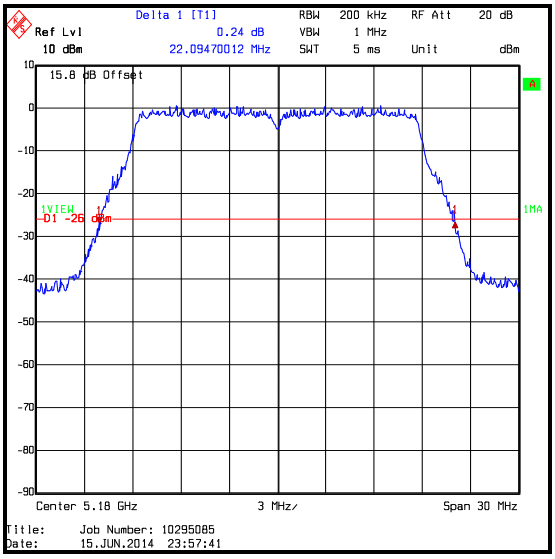


Top Channel

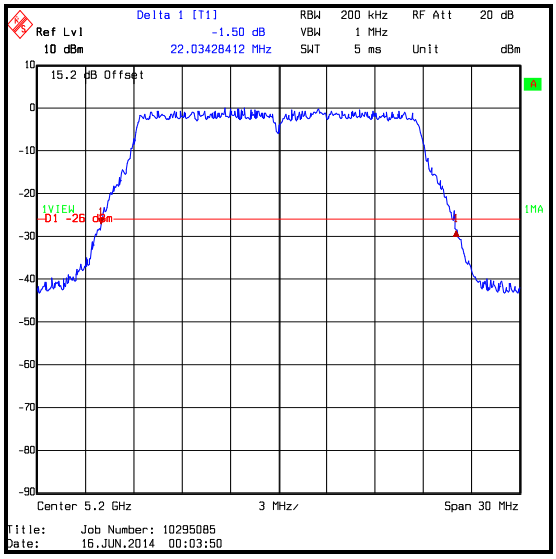
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11ac / 20 MHz / 5.15-5.25 GHz band

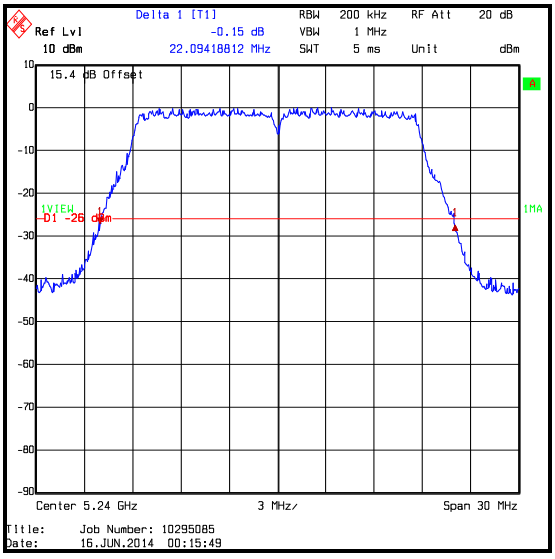
Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Bottom	5180	BPSK	6.5 / 0	22.095
Middle	5200	BPSK	6.5 / 0	22.034
Top	5240	BPSK	6.5 / 0	22.094



Bottom Channel



Middle Channel

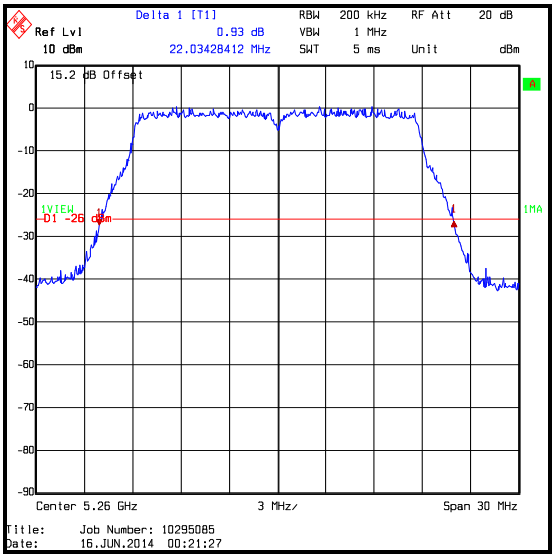


Top Channel

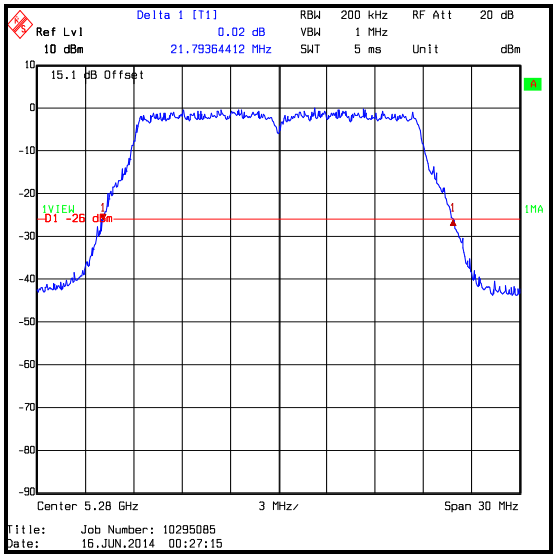
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11ac / 20 MHz / 5.25-5.35 GHz band

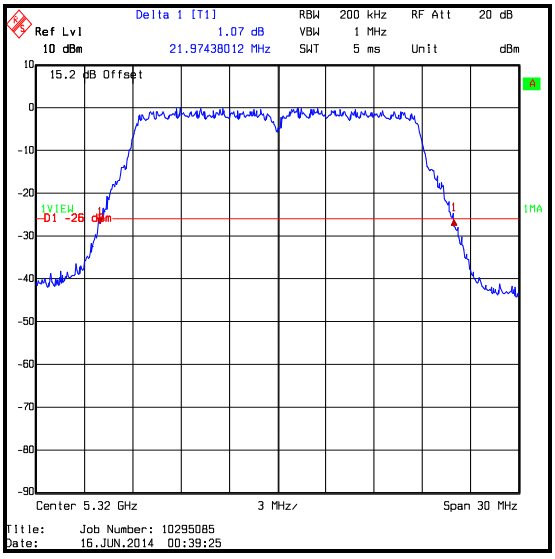
Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Bottom	5260	BPSK	6.5 / 0	22.034
Middle	5280	BPSK	6.5 / 0	21.794
Top	5320	BPSK	6.5 / 0	21.974



Bottom Channel



Middle Channel

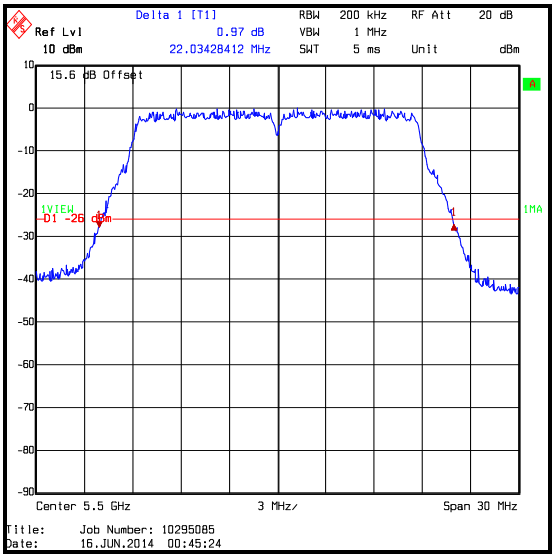


Top Channel

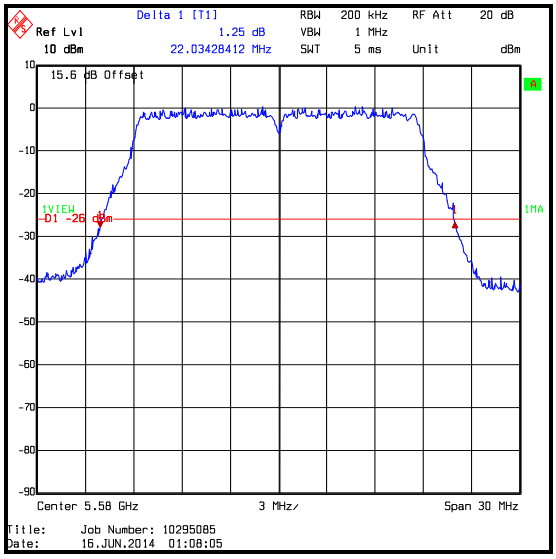
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11ac / 20 MHz / 5.47-5.725 GHz band

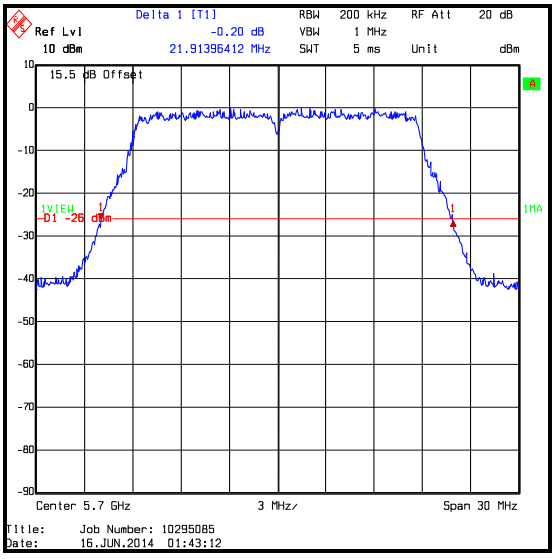
Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Bottom	5500	BPSK	6.5 / 0	22.034
Middle	5580	BPSK	6.5 / 0	22.034
Top	5700	BPSK	6.5 / 0	21.914



Bottom Channel



Middle Channel

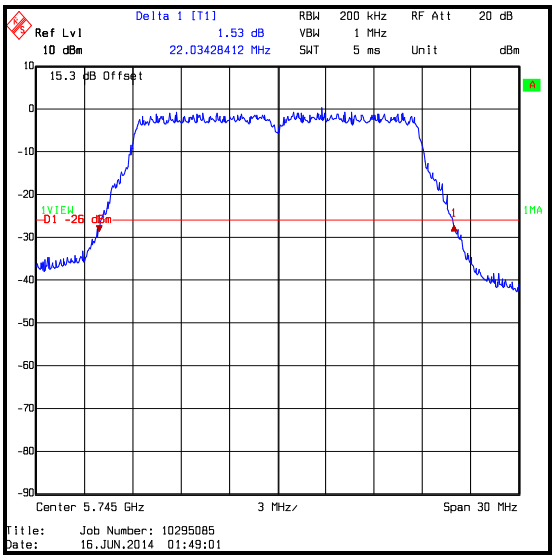


Top Channel

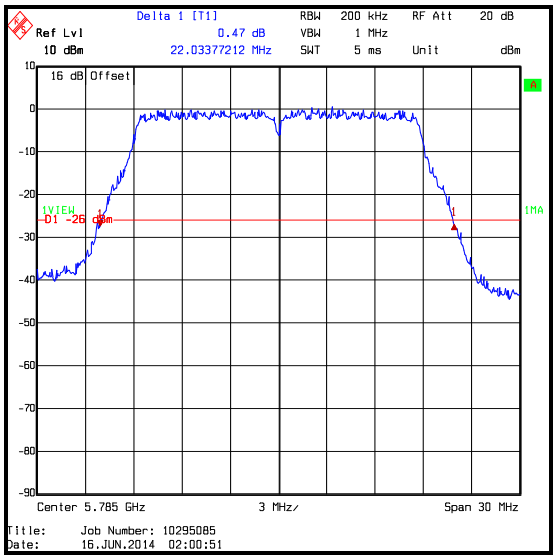
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11ac / 20 MHz / 5.725-5.85 GHz band

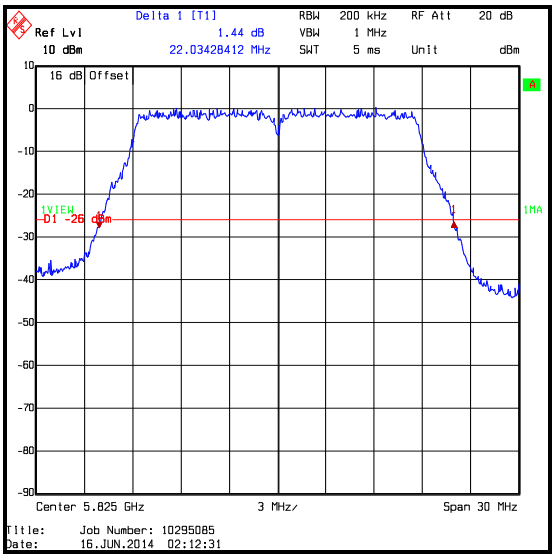
Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Bottom	5745	BPSK	6.5 / 0	22.034
Middle	5785	BPSK	6.5 / 0	22.034
Top	5825	BPSK	6.5 / 0	22.034



Bottom Channel



Middle Channel

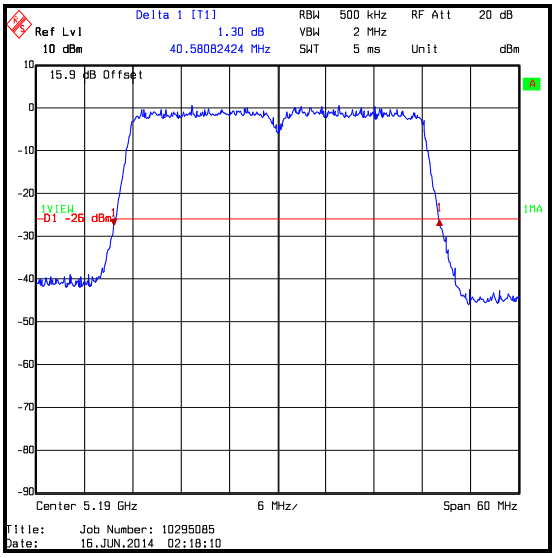


Top Channel

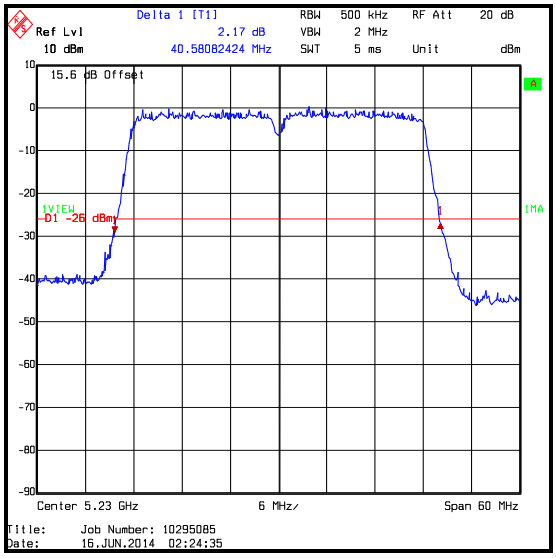
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11ac / 40 MHz / 5.15-5.25 GHz band

Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Bottom	5190	QPSK	27 / 1	40.581
Top	5230	QPSK	27 / 1	40.581



Bottom Channel

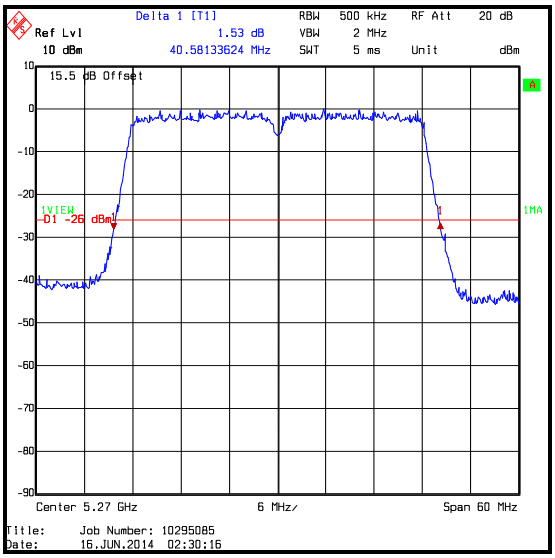


Top Channel

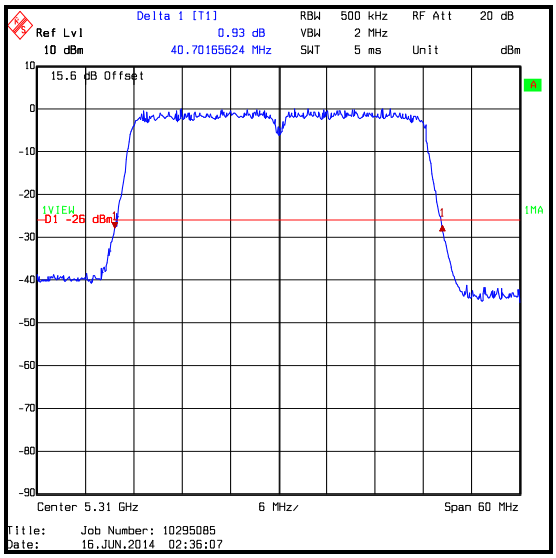
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11ac / 40 MHz / 5.25-5.35 GHz band

Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Bottom	5270	QPSK	27 / 1	40.581
Top	5310	QPSK	27 / 1	40.702



Bottom Channel

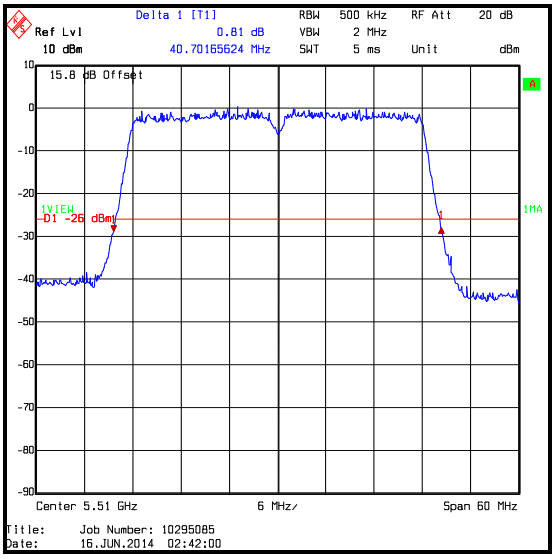


Top Channel

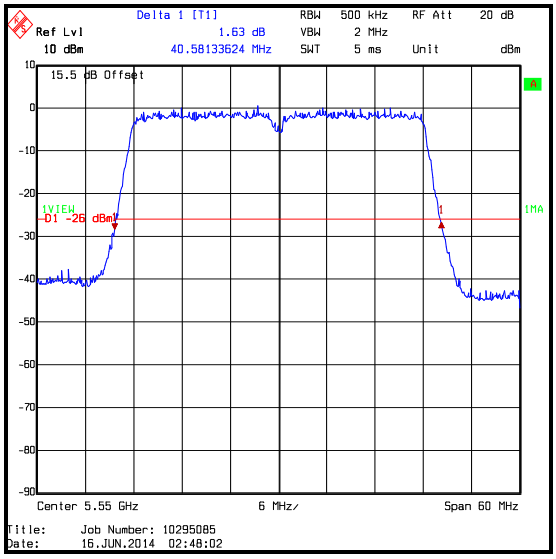
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11ac / 40 MHz / 5.47-5.725 GHz band

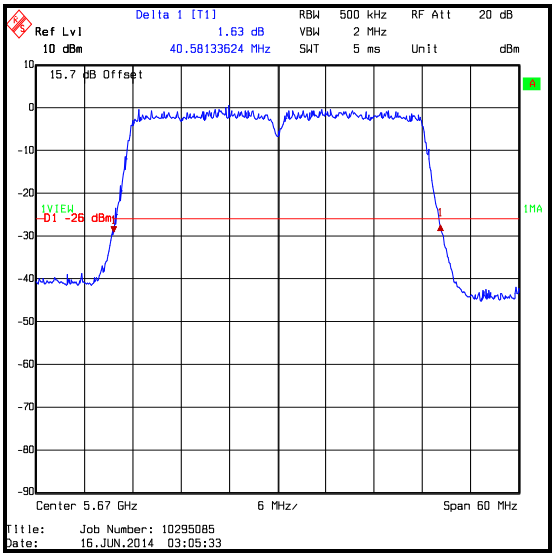
Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Bottom	5510	QPSK	27 / 1	40.702
Middle	5550	QPSK	27 / 1	40.581
Top	5670	QPSK	27 / 1	40.581



Bottom Channel



Middle Channel

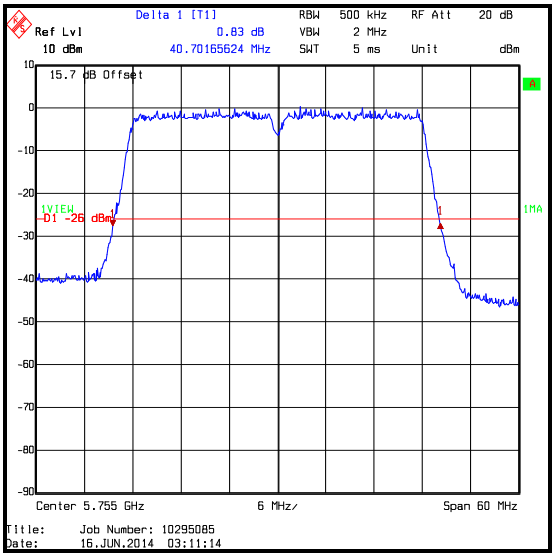


Top Channel

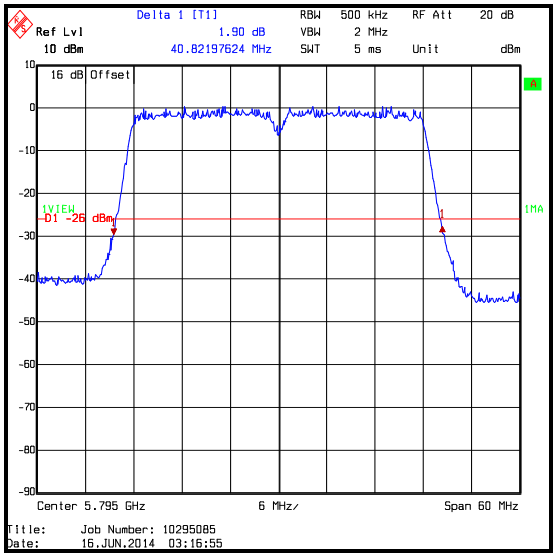
Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11ac / 40 MHz / 5.725-5.85 GHz band

Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Bottom	5755	QPSK	27 / 1	40.702
Top	5795	QPSK	27 / 1	40.822



Bottom Channel

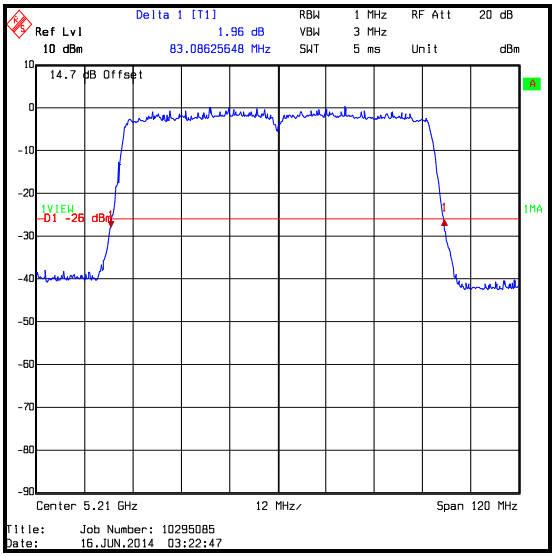


Top Channel

Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11ac / 80 MHz / 5.15-5.25 GHz band

Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Single	5210	QPSK	58.5 / 1	83.086

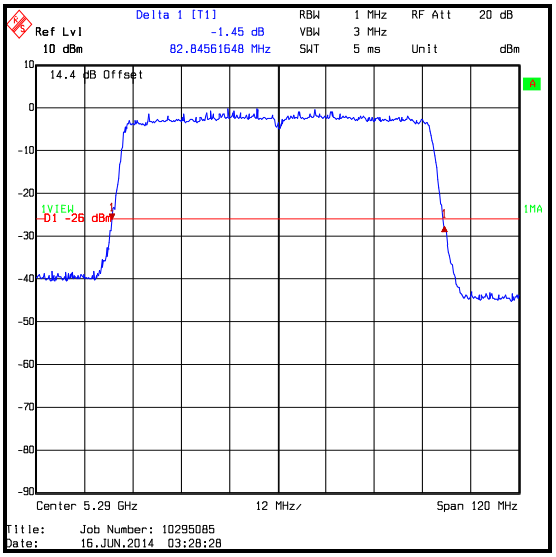


Single Channel

Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11ac / 80 MHz / 5.25-5.35 GHz band

Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Single	5290	QPSK	58.5 / 1	82.846

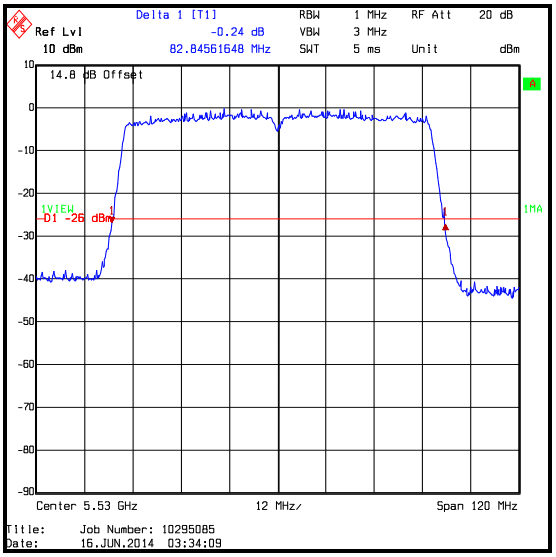


Single Channel

Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11ac / 80 MHz / 5.47-5.725 GHz band

Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Single	5530	QPSK	58.5 / 1	82.846

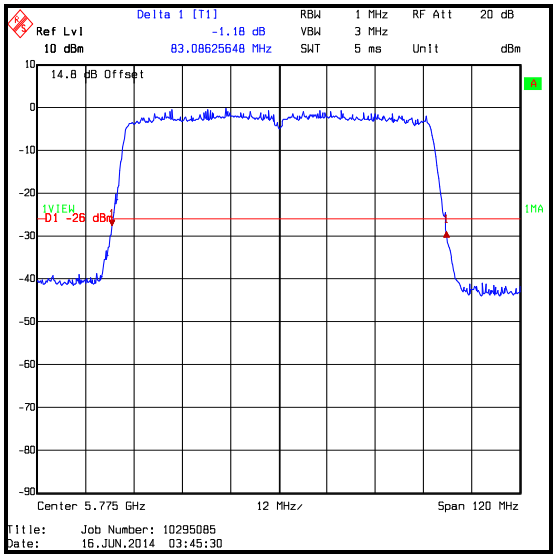


Single Channel

Transmitter 26 dB Emission Bandwidth (continued)

Results: 802.11ac / 80 MHz / 5.725-5.85 GHz band

Channel	Frequency (MHz)	Modulation scheme	Data Rate Mbps / MCS	26 dB Emission Bandwidth (MHz)
Single	5775	QPSK	58.5 / 1	83.086



Single Channel

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1657	Thermohygrometer	JM Handelspunkt	30.5015.13	Not stated	14 Mar 2015	12
M127	Spectrum Analyser	Rohde & Schwarz	FSEB 30	842 659/016	19 Aug 2014	12
A1998	Attenuator	Huber & Suhner	6820.17.B	07101	Calibrated before use	-
G0608	Signal Generator	Rohde & Schwarz	SMIQ 06B	838341/033	14 Feb 2015	12
M199	Power Meter	Rohde & Schwarz	NRVS	827023/075	08 Apr 2016	24
M1267	Power Sensor	Rohde & Schwarz	NRV-Z52	100155	23 Apr 2016	24
A1256	Power Supply Unit	Farnell	11E30/1B	000378	Calibrated before use	-
M1229	Multimeter	Fluke	179	87640015	24 Apr 2015	12

5.2.3. Transmitter Minimum 6 dB Bandwidth (5.725-5.85 GHz band)

Test Summary:

Test Engineer:	Nick Steele	**Test Date:**	16 June 2014
Test Sample IMEI:	004402452706116		

FCC Reference:	Part 15.407(e)
Test Method Used:	As detailed in KDB 789033 D02 Section II.C.2.

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	40

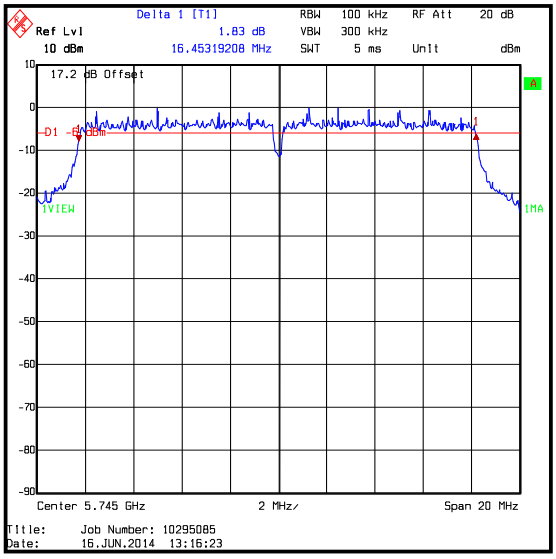
Note(s):

1. All configurations supported by the EUT were investigated on one channel in accordance with KDB 789033 Section II.C.2. Minimum Emission Bandwidth for the band 5.725-5.85 GHz measurement procedure. The data rates that produced the narrowest bandwidth and therefore deemed worst case were:
    - 802.11a – BPSK / 6 Mbps
    - 802.11n HT20 – BPSK / 6.5 Mbps / MCS0 (GI = 800 ns)
    - 802.11n HT40 – BPSK / 13.5 Mbps / MCS0 (GI = 800 ns)
    - 802.11ac VHT20 – BPSK / 6.5 Mbps / MCS0 (GI = 800 ns)
    - 802.11ac VHT40 – QPSK / 27 Mbps / MCS1 (GI = 800 ns)
    - 802.11ac VHT80 – QPSK / 87.8 Mbps / MCS2 (GI = 800 ns)
2. Final measurements were performed using the above configurations on the bottom, middle and top channels.
3. Plots for all data rates are archived on the Company server and available for inspection upon request.
4. The test receiver was connected to the RF port on the EUT using suitable attenuation and RF cable.

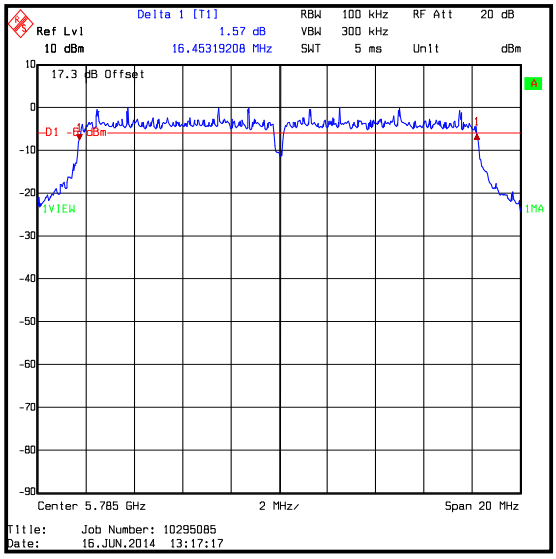
Transmitter Minimum 6 dB Bandwidth (5.725-5.85 GHz band) (continued)

Results: 802.11a / 20 MHz / BPSK / 6 Mbps

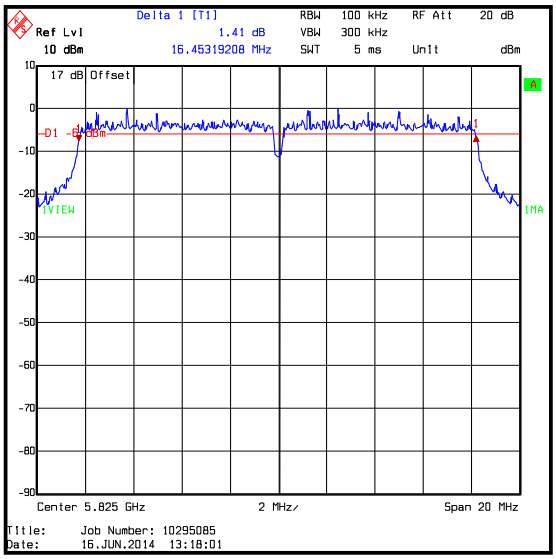
Channel	6 dB Bandwidth (kHz)	Limit (kHz)	Margin (kHz)	Result
Bottom	16453.192	≥500	15953.192	Complied
Middle	16453.192	≥500	15953.192	Complied
Top	16453.192	≥500	15953.192	Complied



Bottom Channel



Middle Channel

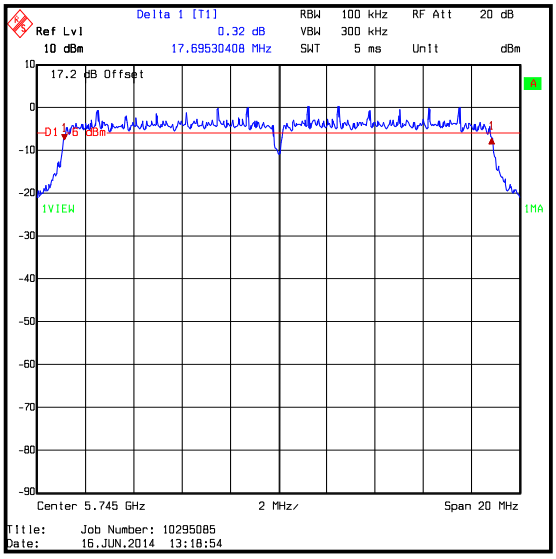


Top Channel

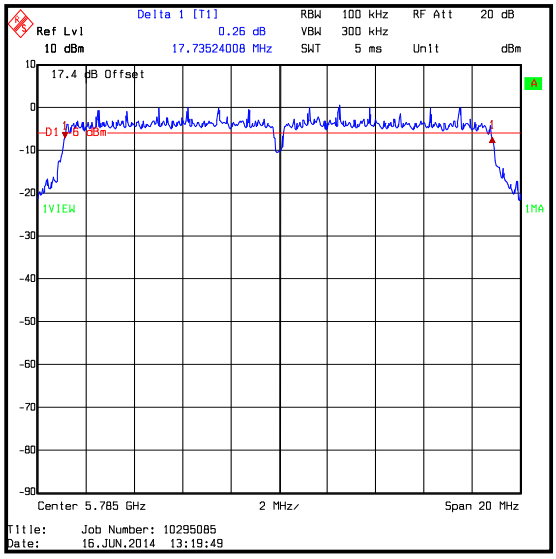
Transmitter Minimum 6 dB Bandwidth (5.725-5.85 GHz band) (continued)

Results: 802.11n / 20 MHz / BPSK / 6.5 Mbps / MCS0

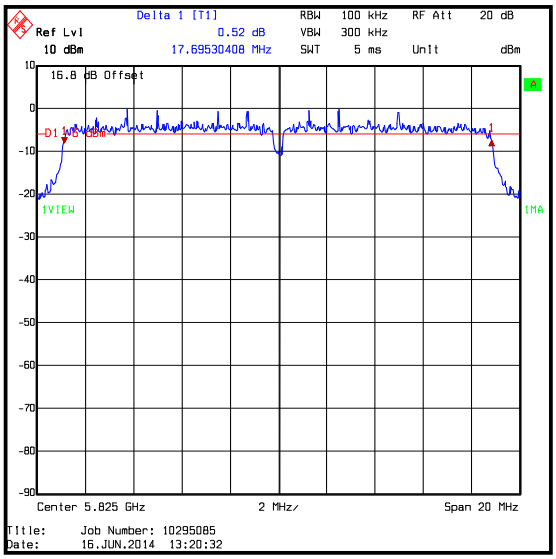
Channel	6 dB Bandwidth (kHz)	Limit (kHz)	Margin (kHz)	Result
Bottom	17695.304	≥500	17195.304	Complied
Middle	17735.240	≥500	17235.240	Complied
Top	17695.304	≥500	17195.304	Complied



Bottom Channel



Middle Channel

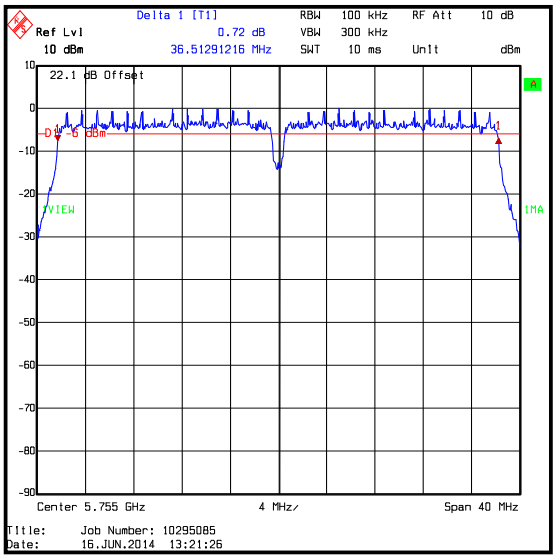


Top Channel

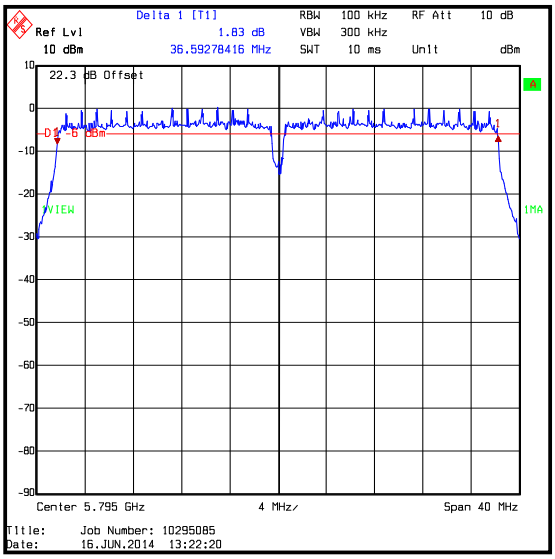
Transmitter Minimum 6 dB Bandwidth (5.725-5.85 GHz band) (continued)

Results: 802.11n / 40 MHz / BPSK / 13.5 Mbps / MCS0

Channel	6 dB Bandwidth (kHz)	Limit (kHz)	Margin (kHz)	Result
Bottom	36512.912	≥500	36012.912	Complied
Top	36592.784	≥500	36092.784	Complied



Bottom Channel

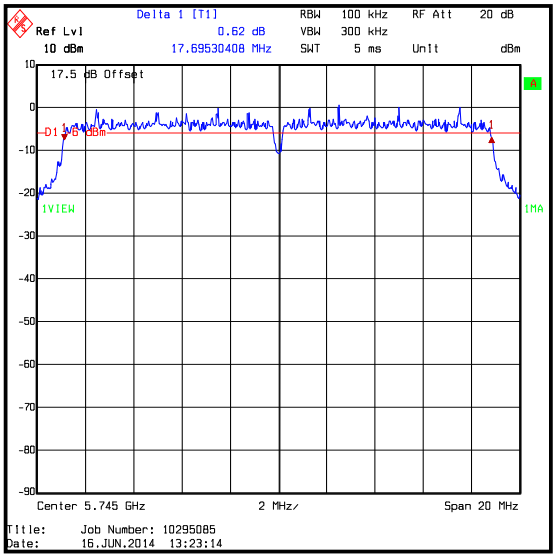


Top Channel

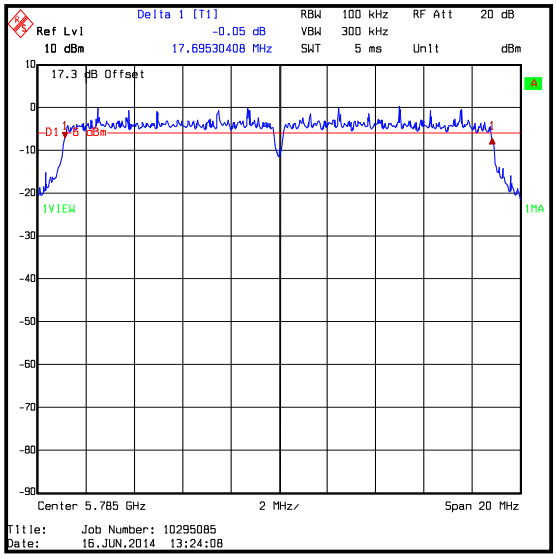
Transmitter Minimum 6 dB Bandwidth (5.725-5.85 GHz band) (continued)

Results: 802.11ac / 20 MHz / BPSK / 6.5 Mbps / MCS0

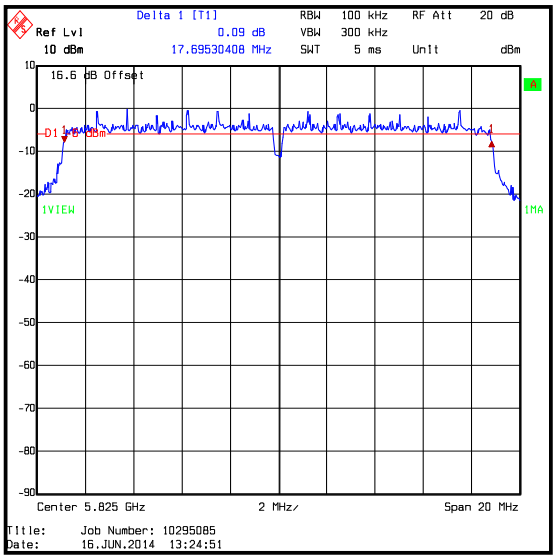
Channel	6 dB Bandwidth (kHz)	Limit (kHz)	Margin (kHz)	Result
Bottom	17695.304	≥500	17195.304	Complied
Middle	17695.304	≥500	17195.304	Complied
Top	17695.304	≥500	17195.304	Complied



Bottom Channel



Middle Channel

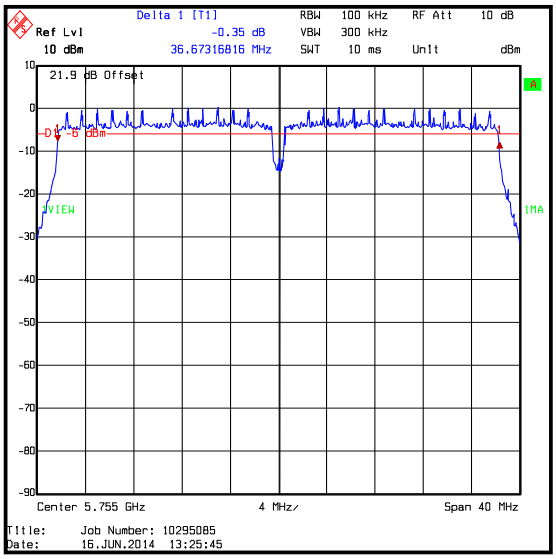


Top Channel

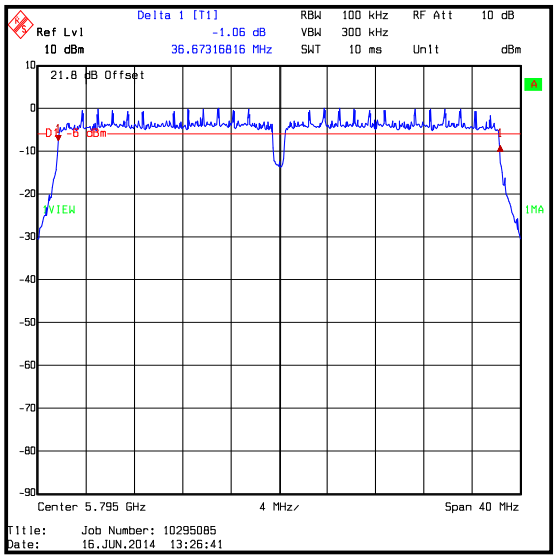
Transmitter Minimum 6 dB Bandwidth (5.725-5.85 GHz band) (continued)

Results: 802.11ac / 40 MHz / QPSK / 27 Mbps / MCS1

Channel	6 dB Bandwidth (kHz)	Limit (kHz)	Margin (kHz)	Result
Bottom	36673.168	≥500	36173.168	Complied
Top	36673.168	≥500	36173.168	Complied



Bottom Channel

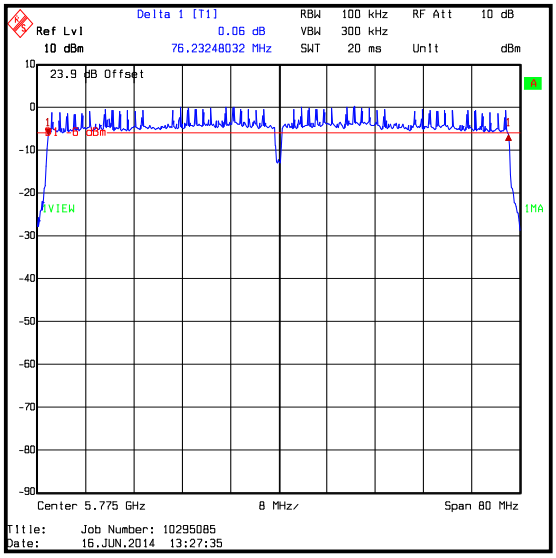


Top Channel

Transmitter Minimum 6 dB Bandwidth (5.725-5.85 GHz band) (continued)

Results: 802.11ac / 80 MHz / QPSK / 87.8 Mbps / MCS2

Channel	6 dB Bandwidth (kHz)	Limit (kHz)	Margin (kHz)	Result
Single	76232.480	≥500	75732.480	Complied



Single Channel

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1657	Thermohygrometer	JM Handelspunkt	30.5015.13	Not stated	14 Mar 2015	12
M127	Spectrum Analyser	Rohde & Schwarz	FSEB 30	842 659/016	19 Aug 2014	12
A1998	Attenuator	Huber & Suhner	6820.17.B	07101	Calibrated before use	-
G0608	Signal Generator	Rohde & Schwarz	SMIQ 06B	838341/033	14 Feb 2015	12
M199	Power Meter	Rohde & Schwarz	NRVS	827023/075	08 Apr 2016	24
M1267	Power Sensor	Rohde & Schwarz	NRV-Z52	100155	23 Apr 2016	24
A1256	Power Supply Unit	Farnell	11E30/1B	000378	Calibrated before use	-
M1229	Multimeter	Fluke	179	87640015	24 Apr 2015	12

5.2.4. Transmitter Duty Cycle

Test Summary:

Test Engineer:	Nick Steele	**Test Date:**	14 June 2014
Test Sample IMEI:	004402452706116		

FCC Reference:	Part 15.35(c)
Test Method Used:	As detailed in KDB 789033 D02 Section II.B.2.b)

Environmental Conditions:

Temperature (°C):	21
Relative Humidity (%):	45

Note(s):

1. In order to assist with the determination of the average level of fundamental and spurious emissions field strength, measurements were made of duty cycle to determine the transmission duration and the silent period time of the transmitter. The transmitter duty cycle was measured using a spectrum analyser in the time domain and calculated by using the following calculation:

10 log 1 / (On Time / [Period or 100ms whichever is the lesser]).

802.11a / 12 Mbps duty cycle: 10 log (1 / (1562.525/1608.617)) = 0.1
802.11a / 54 Mbps duty cycle: 10 log (1 / (366.595/388.679)) = 0.3
802.11n HT20 / 58.5 Mbps duty cycle: 10 log (1 / (354.758/376.401)) = 0.3
802.11n HT40 / 40.5 Mbps duty cycle: 10 log (1 / (499.569/523.297)) = 0.2
802.11ac VHT20 / 52 Mbps duty cycle: 10 log (1 / (399.047/421.893)) = 0.2
802.11ac VHT40 / 27 Mbps duty cycle: 10 log (1 / (731.416/756.666)) = 0.1
802.11ac VHT40 / 108 Mbps duty cycle: 10 log (1 / (214.101/235.905)) = 0.4
802.11ac VHT80 / 58.5 Mbps duty cycle: 10 log (1 / (359.519/382.445)) = 0.3
802.11ac VHT80 / 87.8 Mbps duty cycle: 10 log (1 / (264.079/284.921)) = 0.3

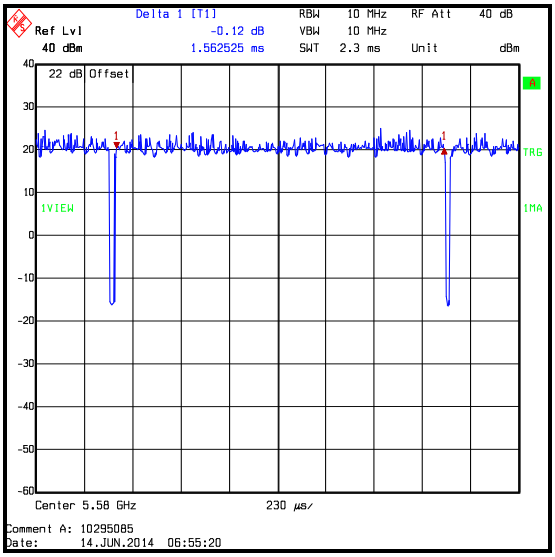
2. Plots below are for data rates with a duty cycle less than 98%. Results for all other modes are archived on the Company server and available for inspection if required.

Transmitter Duty Cycle (continued)

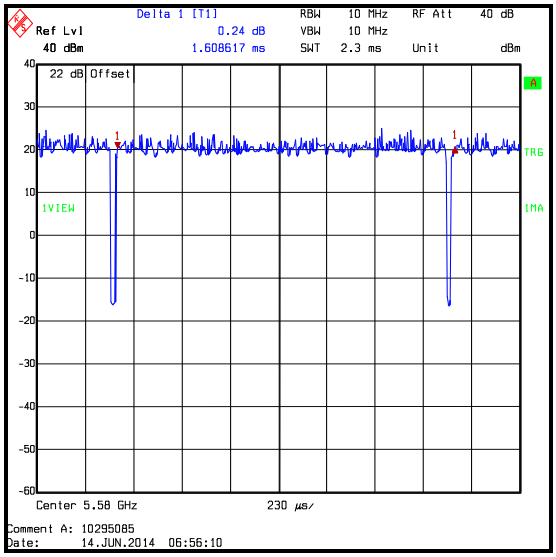
Results: 802.11a / 20 MHz / 12 Mbps

Pulse Duration (µs)	Duty Cycle (dB)
1562.525	0.1

Period (µs)
1608.617



TX on time



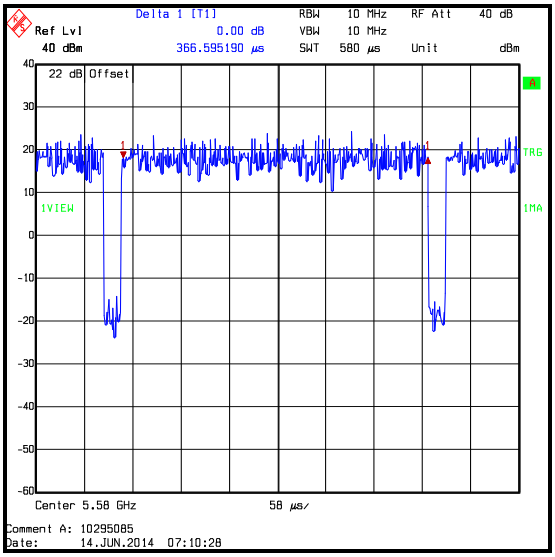
TX on + off time

Transmitter Duty Cycle (continued)

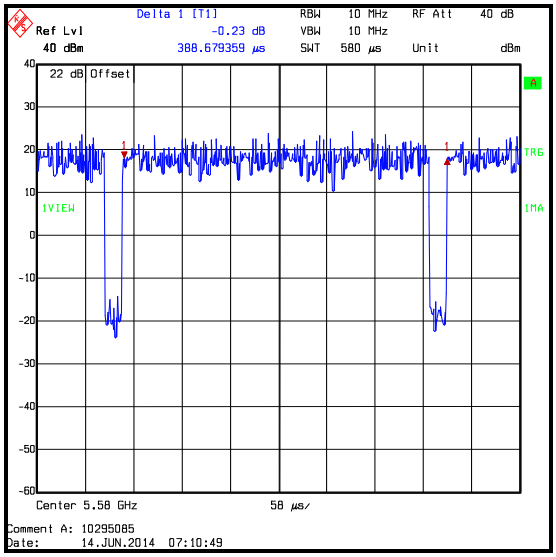
Results: 802.11a / 20 MHz / 54 Mbps

Pulse Duration (µs)	Duty Cycle (dB)
366.595	0.3

Period (µs)
388.679



TX on time



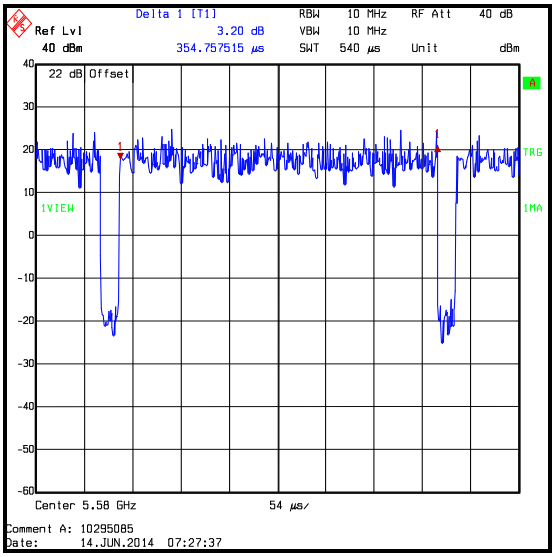
TX on + off time

Transmitter Duty Cycle (continued)

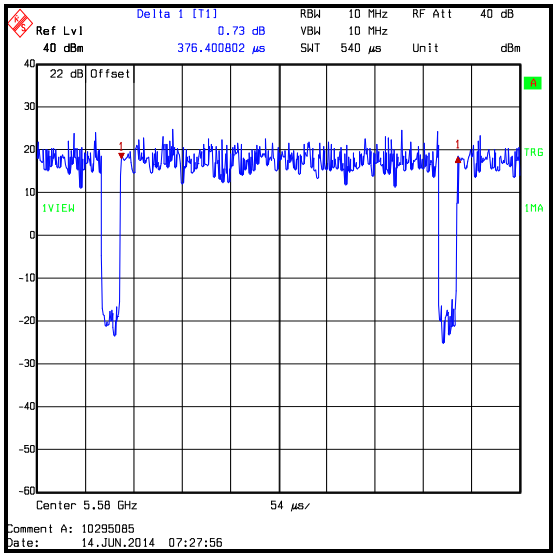
Results: 802.11n / 20 MHz / 58.5 Mbps / MCS6

Pulse Duration (µs)	Duty Cycle (dB)
354.758	0.3

Period (µs)
376.401



TX on time



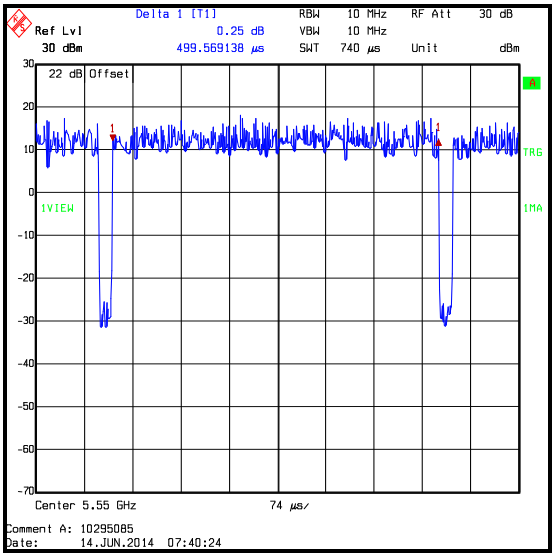
TX on + off time

Transmitter Duty Cycle (continued)

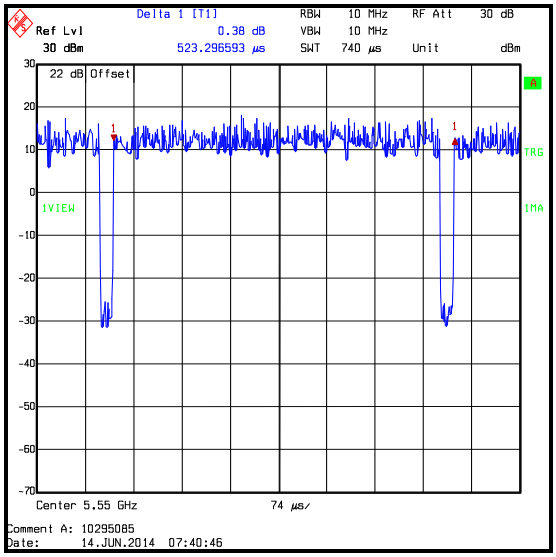
Results: 802.11n / 40 MHz / 40.5 Mbps / MCS2

Pulse Duration (µs)	Duty Cycle (dB)
499.569	0.2

Period (µs)
523.297



TX on time



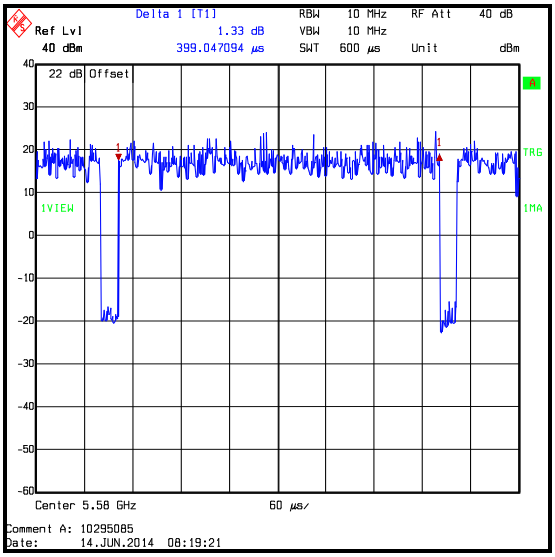
TX on + off time

Transmitter Duty Cycle (continued)

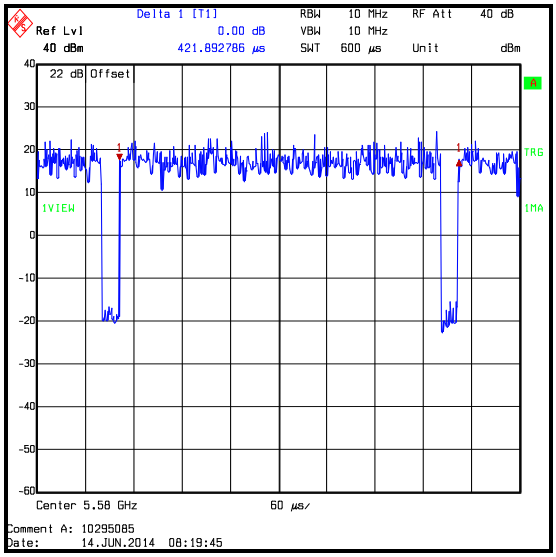
Results: 802.11ac / 20 MHz / 52 Mbps / MCS5

Pulse Duration (µs)	Duty Cycle (dB)
399.047	0.2

Period (µs)
421.893



TX on time



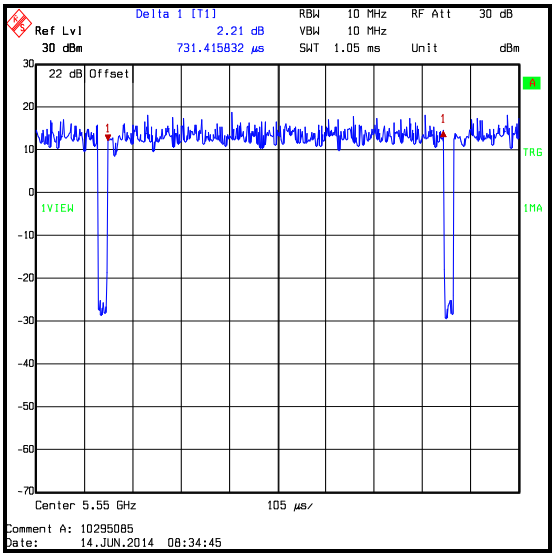
TX on + off time

Transmitter Duty Cycle (continued)

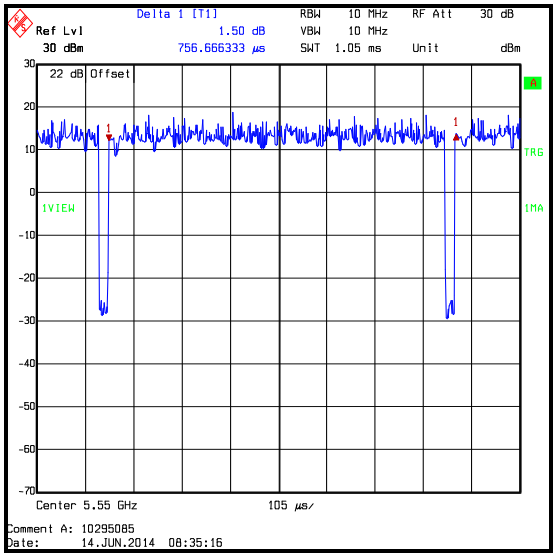
Results: 802.11ac / 40 MHz / 27 Mbps / MCS1

Pulse Duration (µs)	Duty Cycle (dB)
731.416	0.1

Period (µs)
756.666



TX on time



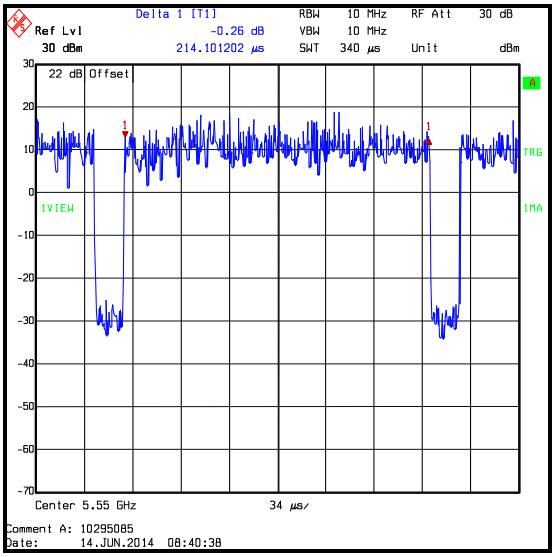
TX on + off time

Transmitter Duty Cycle (continued)

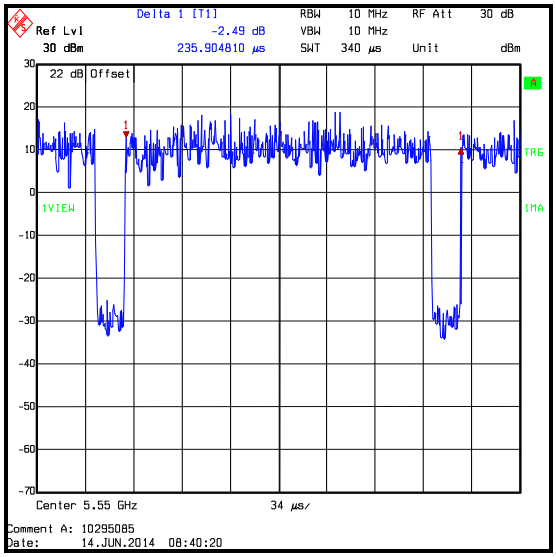
Results: 802.11ac / 40 MHz / 108 Mbps / MCS5

Pulse Duration (µs)	Duty Cycle (dB)
214.101	0.4

Period (µs)
235.905



TX on time



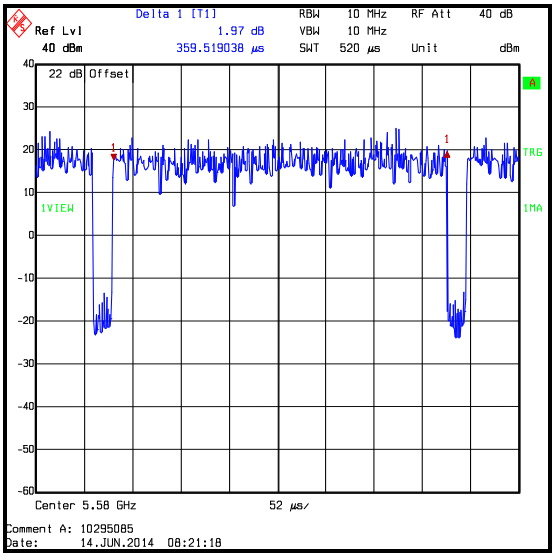
TX on + off time

Transmitter Duty Cycle (continued)

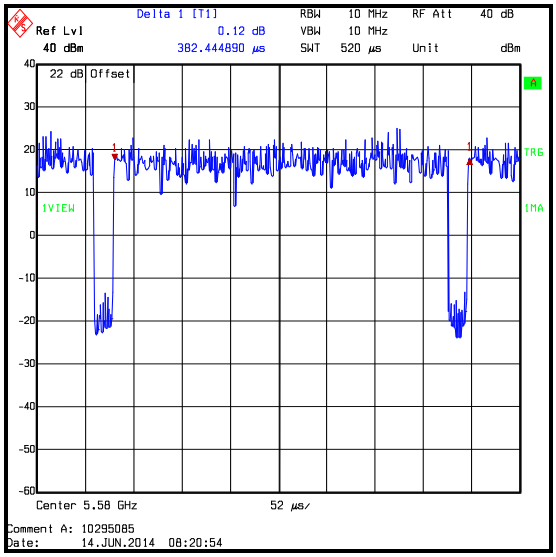
Results: 802.11ac / 80 MHz / 58.5 Mbps / MCS1

Pulse Duration (µs)	Duty Cycle (dB)
359.519	0.3

Period (µs)
382.445



TX on time



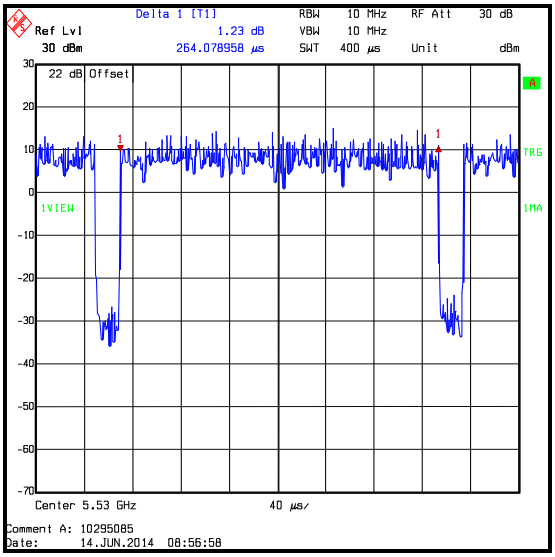
TX on + off time

Transmitter Duty Cycle (continued)

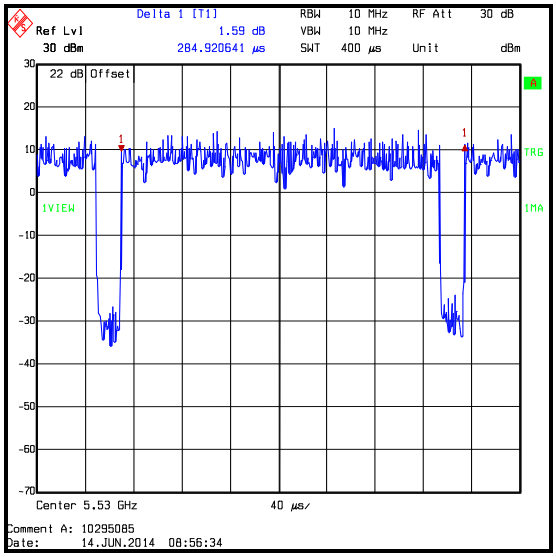
Results: 802.11ac / 80 MHz / 87.8 Mbps / MCS2

Pulse Duration (µs)	Duty Cycle (dB)
264.079	0.3

Period (µs)
284.921



TX on time



TX on + off time

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1657	Thermohygrometer	JM Handelspunkt	30.5015.13	Not stated	14 Mar 2015	12
M127	Spectrum Analyser	Rohde & Schwarz	FSEB 30	842 659/016	19 Aug 2014	12
A1998	Attenuator	Huber & Suhner	6820.17.B	07101	Calibrated before use	-
A1256	Power Supply Unit	Farnell	11E30/1B	000378	Calibrated before use	-
M1229	Multimeter	Fluke	179	87640015	24 Apr 2015	12

5.2.5. Transmitter Maximum Conducted Output Power

Test Summary:

Test Engineer:	Nick Steele	**Test Dates:**	15 June 2014 & 16 June 2014
Test Sample IMEI:	004402452706116		

FCC Reference:	Part 15.407(a)(1)(iv)
Test Method Used:	As detailed in KDB 789033 D02 Section II.E.2.e)

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	47

Note(s):

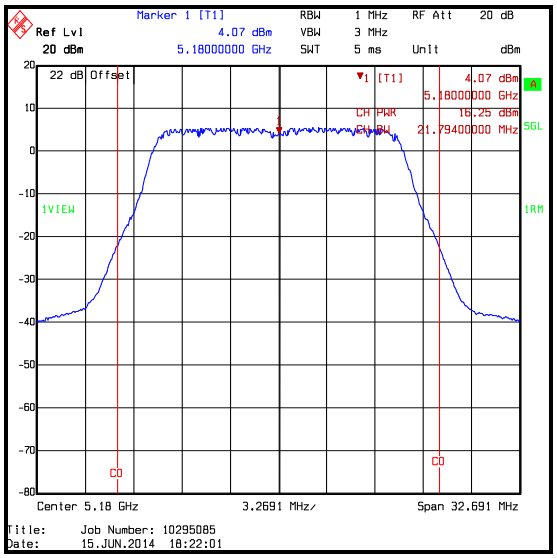
1. All conducted power tests were performed using a test receiver in accordance with FCC KDB 789033 II.E.2.e) Method SA-2 Alternative.
2. All supported modes and channel widths were initially investigated on one channel. The modes that produced the highest power and therefore deemed worst case were:
   - 802.11a – QPSK / 12 Mbps
   - 802.11n HT20 – BPSK / 6.5 Mbps / MCS0 (GI = 800 ns)
   - 802.11n HT40 – BPSK / 13.5 Mbps / MCS0 (GI = 800 ns)
   - 802.11ac VHT20 – BPSK / 6.5 Mbps / MCS0 (GI = 800 ns)
   - 802.11ac VHT40 – QPSK / 27 Mbps / MCS1 (GI = 800 ns)
   - 802.11ac VHT80 – QPSK / 58.5 Mbps / MCS1 (GI = 800 ns)

   Measurements were then performed in these modes on bottom, middle and top channels in all operating bands.
3. For data rates where the EUT was transmitting at <98% duty cycle, the calculated duty cycle in section 5.2.4 was added to the measured power in order to compute the average power during the actual transmission time.
4. The EUT antenna has a gain of <6 dBi.
5. The spectrum analyser was connected to the RF port on the EUT using suitable attenuation and RF cable. An RF level offset was entered on the spectrum analyser to compensate for the loss of the attenuator and RF cable.
6. The Part 15.407(a)(1)(iv) limit shall not exceed 250 mW (24.0 dBm).

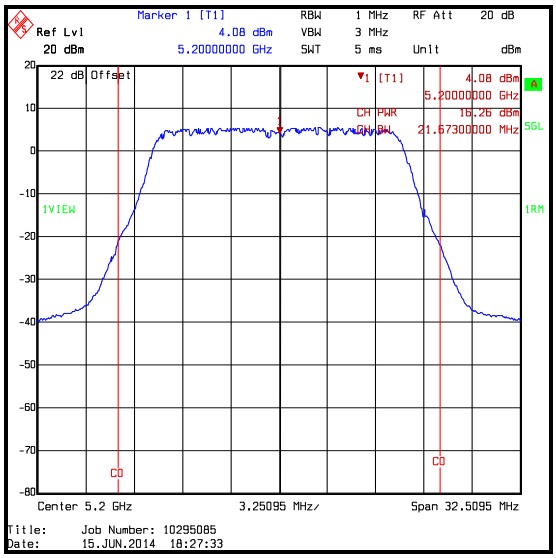
Transmitter Maximum Conducted Output Power (5.15-5.25 GHz band) (continued)

Results: 802.11a / 20 MHz / QPSK / 12 Mbps

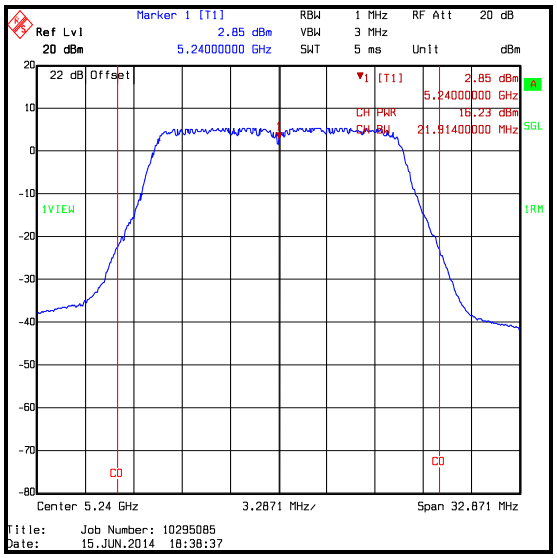
Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5180	16.3	0.1	16.4	24.0	7.6	Complied
Middle	5200	16.3	0.1	16.4	24.0	7.6	Complied
Top	5240	16.2	0.1	16.3	24.0	7.7	Complied



Bottom Channel



Middle Channel

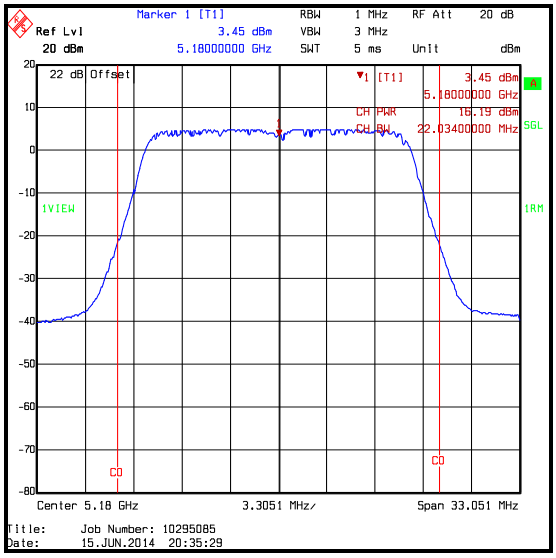


Top Channel

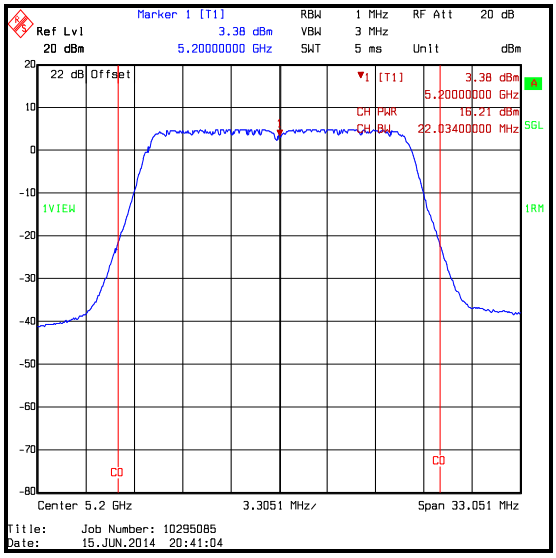
Transmitter Maximum Conducted Output Power (5.15-5.25 GHz band) (continued)

Results: 802.11n / 20 MHz / BPSK / 6.5 Mbps / MCS0

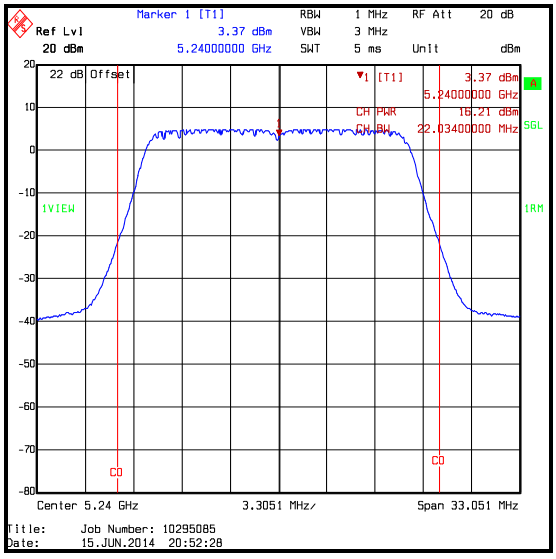
Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5180	16.2	24.0	7.8	Complied
Middle	5200	16.2	24.0	7.8	Complied
Top	5240	16.2	24.0	7.8	Complied



Bottom Channel



Middle Channel

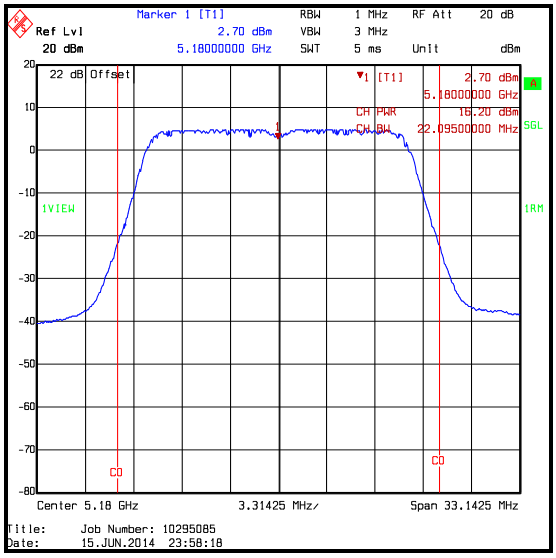


Top Channel

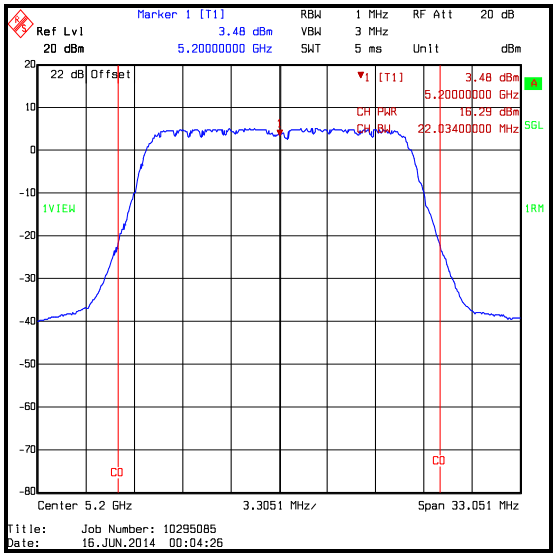
Transmitter Maximum Conducted Output Power (5.15-5.25 GHz band) (continued)

Results: 802.11ac / 20 MHz / BPSK / 6.5 Mbps / MCS0

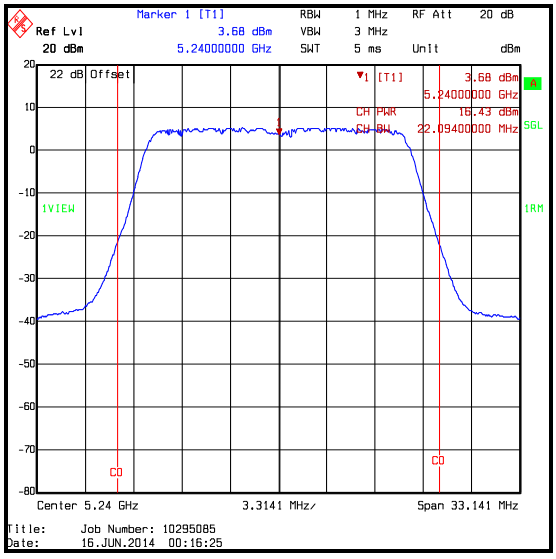
Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5180	16.2	24.0	7.8	Complied
Middle	5200	16.3	24.0	7.7	Complied
Top	5240	16.4	24.0	7.6	Complied



Bottom Channel



Middle Channel

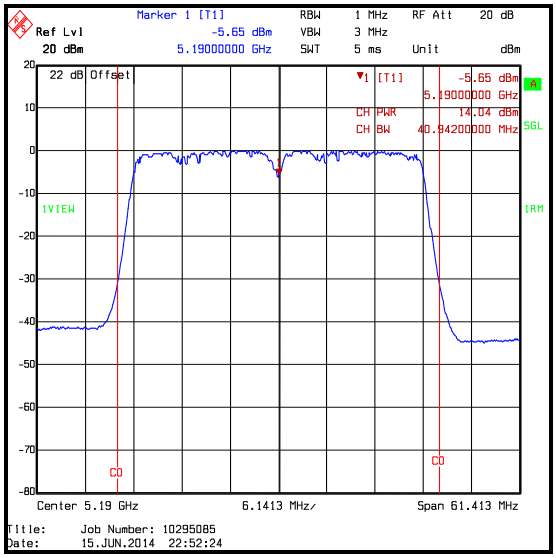


Top Channel

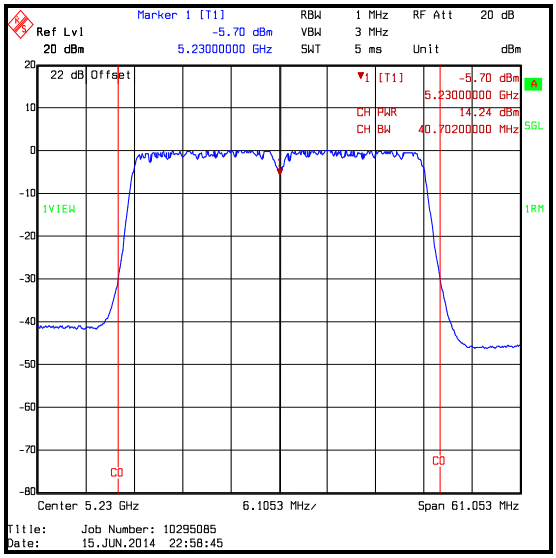
Transmitter Maximum Conducted Output Power (5.15-5.25 GHz band) (continued)

Results: 802.11n / 40 MHz / BPSK / 13.5 Mbps / MCS0

Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5190	14.0	24.0	10.0	Complied
Top	5230	14.2	24.0	9.8	Complied



Bottom Channel

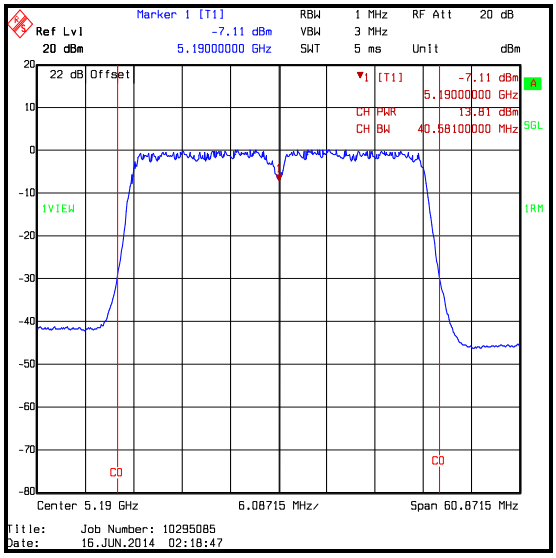


Top Channel

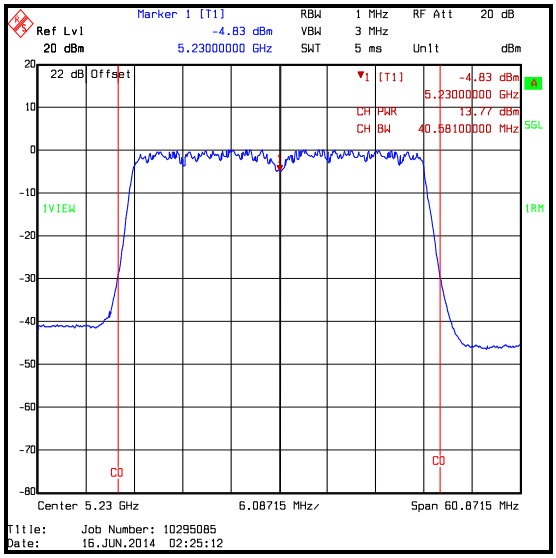
Transmitter Maximum Conducted Output Power (5.15-5.25 GHz band) (continued)

Results: 802.11ac / 40 MHz / QPSK / 27 Mbps / MCS1

Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5190	13.8	0.1	13.9	24.0	10.1	Complied
Top	5230	13.8	0.1	13.9	24.0	10.1	Complied



Bottom Channel

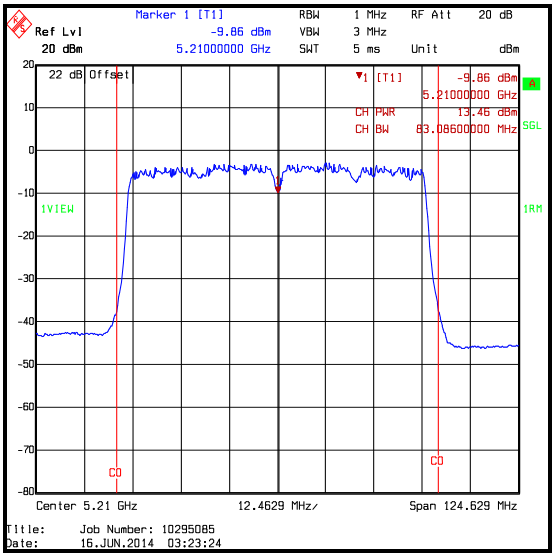


Top Channel

Transmitter Maximum Conducted Output Power (5.15-5.25 GHz band) (continued)

Results: 802.11ac / 80 MHz / QPSK / 58.5 Mbps / MCS1

Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5210	13.5	0.3	13.8	24.0	10.2	Complied



Single Channel

Transmitter Maximum Conducted Output Power (5.25-5.35 GHz & 5.47-5.725 GHz bands)

Test Summary:

Test Engineer:	Nick Steele	**Test Dates:**	15 June 2014 & 16 June 2014
Test Sample IMEI:	004402452706116		

FCC Reference:	Part 15.407(a)(2)
Test Method Used:	As detailed in KDB 789033 D02 Section II.E.2.e)

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	47

Note(s):

1. The FCC Part 15.407(a)(2) limit is the lesser of 250 mW (24.0 dBm) or 11 dBm + 10 $\log_{10}$ B, where B is the previously measured 26 dB emission bandwidth in MHz. The limit for each channel was calculated as below:

5.25-5.35 GHz band

802.11a 20 MHz channel width / Bottom channel = *11 dBm + 10 log$_{10}$ 21.794 = 24.4 dBm*
802.11a 20 MHz channel width / Middle channel = *11 dBm + 10 log$_{10}$ 21.794 = 24.4 dBm*
802.11a 20 MHz channel width / Top channel = *11 dBm + 10 log$_{10}$ 21.734 = 24.4 dBm*
802.11n 20 MHz channel width / Bottom channel = *11 dBm + 10 log$_{10}$ 22.094 = 24.4 dBm*
802.11n 20 MHz channel width / Middle channel = *11 dBm + 10 log$_{10}$ 21.974 = 24.4 dBm*
802.11n 20 MHz channel width / Top channel = *11 dBm + 10 log$_{10}$ 21.154 = 24.3 dBm*
802.11n 40 MHz channel width / Bottom channel = *11 dBm + 10 log$_{10}$ 40.821 = 27.1 dBm*
802.11n 40 MHz channel width / Top channel = *11 dBm + 10 log$_{10}$ 40.701 = 27.1 dBm*
802.11ac 20 MHz channel width / Bottom channel = *11 dBm + 10 log$_{10}$ 22.034 = 24.4 dBm*
802.11ac 20 MHz channel width / Middle channel = *11 dBm + 10 log$_{10}$ 21.794 = 24.4 dBm*
802.11ac 20 MHz channel width / Top channel = *11 dBm + 10 log$_{10}$ 21.974 = 24.4 dBm*
802.11ac 40 MHz channel width / Bottom channel = *11 dBm + 10 log$_{10}$ 40.581 = 27.1 dBm*
802.11ac 40 MHz channel width / Top channel = *11 dBm + 10 log$_{10}$ 40.702 = 27.1 dBm*
802.11ac 80 MHz channel width / Single channel = *11 dBm + 10 log$_{10}$ 82.846 = 30.2 dBm*

5.47-5.725 GHz band

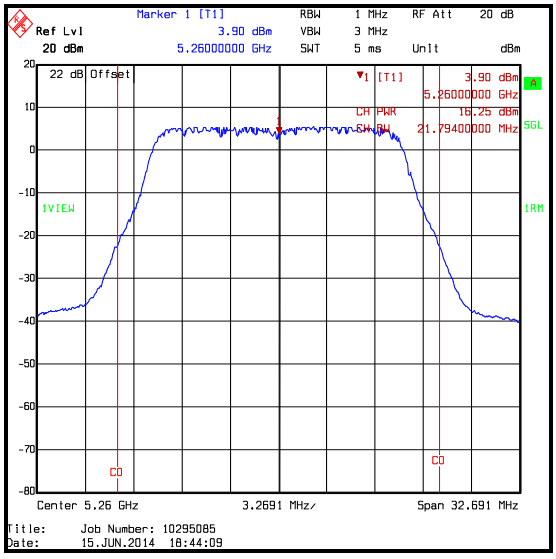
802.11a 20 MHz channel width / Bottom channel = *11 dBm + 10 log$_{10}$ 21.613 = 24.3 dBm*
802.11a 20 MHz channel width / Middle channel = *11 dBm + 10 log$_{10}$ 21.673 = 24.4 dBm*
802.11a 20 MHz channel width / Top channel = *11 dBm + 10 log$_{10}$ 21.794 = 24.4 dBm*
802.11n 20 MHz channel width / Bottom channel = *11 dBm + 10 log$_{10}$ 22.034 = 24.4 dBm*
802.11n 20 MHz channel width / Middle channel = *11 dBm + 10 log$_{10}$ 22.034 = 24.4 dBm*
802.11n 20 MHz channel width / Top channel = *11 dBm + 10 log$_{10}$ 22.155 = 24.5 dBm*
802.11n 40 MHz channel width / Bottom channel = *11 dBm + 10 log$_{10}$ 40.702 = 27.1 dBm*
802.11n 40 MHz channel width / Middle channel = *11 dBm + 10 log$_{10}$ 40.702 = 27.1 dBm*
802.11n 40 MHz channel width / Top channel = *11 dBm + 10 log$_{10}$ 40.701 = 27.1 dBm*
802.11ac 20 MHz channel width / Bottom channel = *11 dBm + 10 log$_{10}$ 22.034 = 24.4 dBm*
802.11ac 20 MHz channel width / Middle channel = *11 dBm + 10 log$_{10}$ 22.034 = 24.4 dBm*
802.11ac 20 MHz channel width / Top channel = *11 dBm + 10 log$_{10}$ 21.914 = 24.4 dBm*
802.11ac 40 MHz channel width / Bottom channel = *11 dBm + 10 log$_{10}$ 40.702 = 27.1 dBm*
802.11ac 40 MHz channel width / Middle channel = *11 dBm + 10 log$_{10}$ 40.581 = 27.1 dBm*
802.11ac 40 MHz channel width / Top channel = *11 dBm + 10 log$_{10}$ 40.581 = 27.1 dBm*
802.11ac 80 MHz channel width / Single channel = *11 dBm + 10 log$_{10}$ 82.846 = 30.2 dBm*

The lesser of the two limits is the fixed limit of 250 mW (24.0 dBm). This was applied to the results.

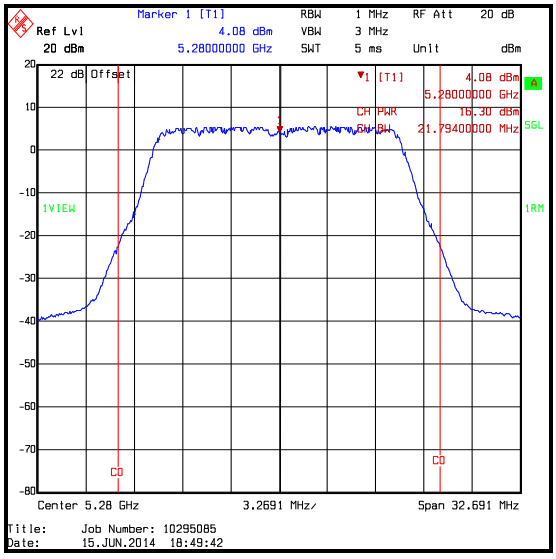
Transmitter Maximum Conducted Output Power (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11a / 20 MHz / QPSK / 12 Mbps / 5.25-5.35 GHz band

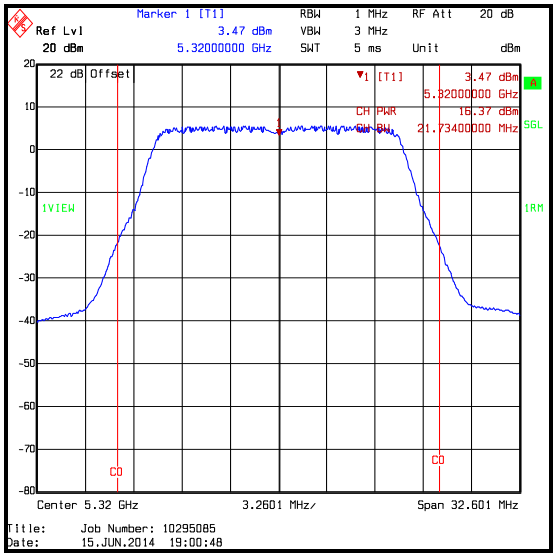
Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5260	16.3	0.1	16.4	24.0	7.6	Complied
Middle	5280	16.3	0.1	16.4	24.0	7.6	Complied
Top	5320	16.4	0.1	16.5	24.0	7.5	Complied



Bottom Channel



Middle Channel

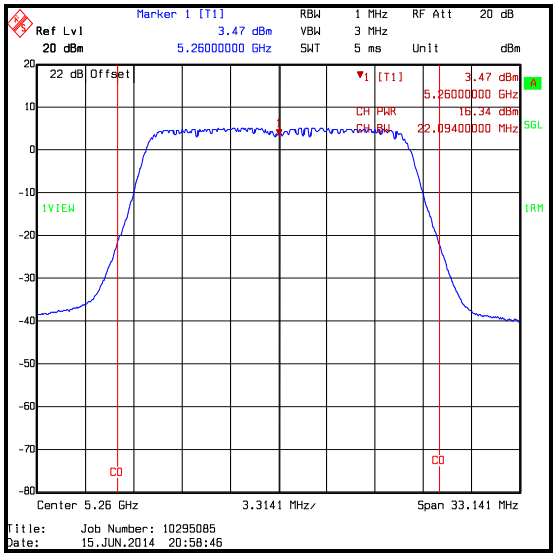


Top Channel

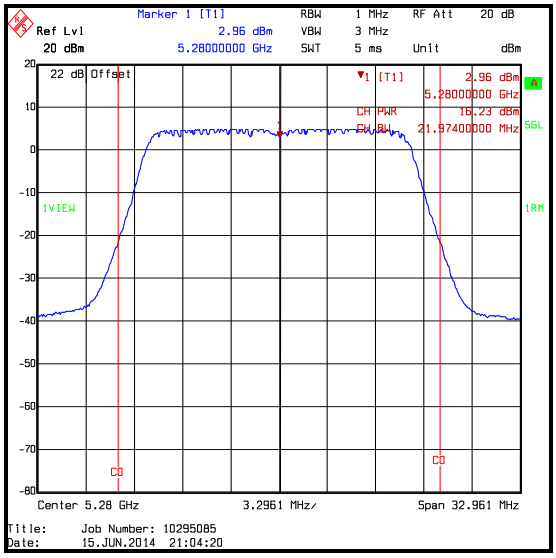
Transmitter Maximum Conducted Output Power (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11n / 20 MHz / BPSK / 6.5 Mbps / MCS0 / 5.25-5.35 GHz band

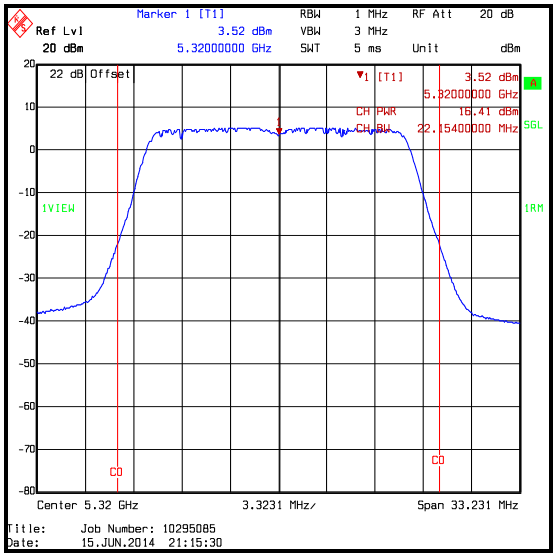
Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5260	16.3	24.0	7.7	Complied
Middle	5280	16.2	24.0	7.8	Complied
Top	5320	16.4	24.0	7.6	Complied



Bottom Channel



Middle Channel

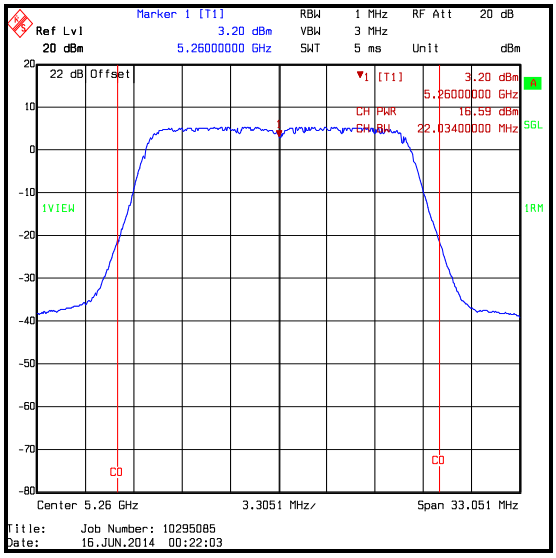


Top Channel

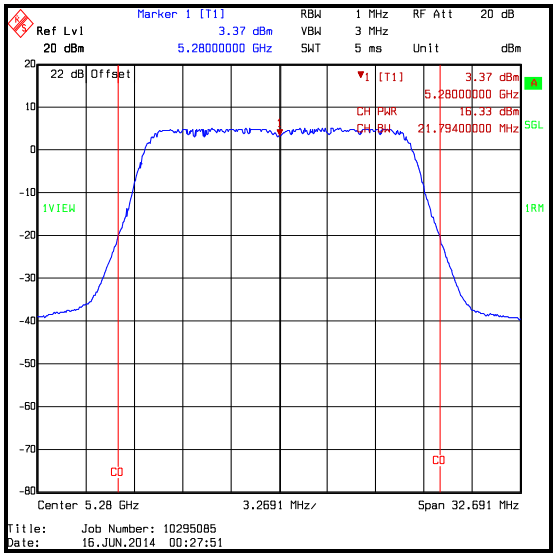
Transmitter Maximum Conducted Output Power (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11ac / 20 MHz / BPSK / 6.5 Mbps / MCS0 / 5.25-5.35 GHz band

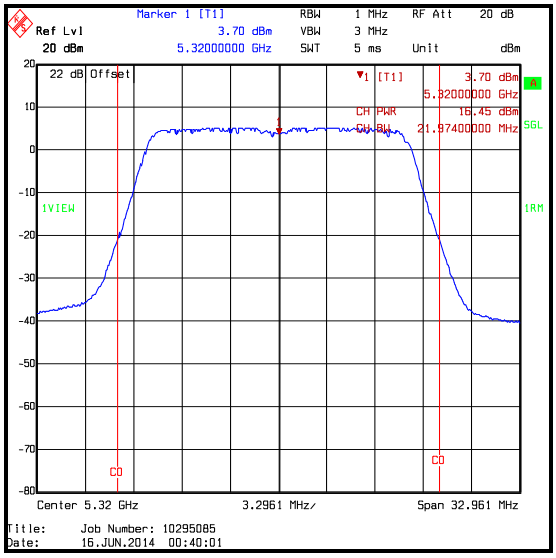
Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5260	16.6	24.0	7.4	Complied
Middle	5280	16.3	24.0	7.7	Complied
Top	5320	16.5	24.0	7.5	Complied



Bottom Channel



Middle Channel

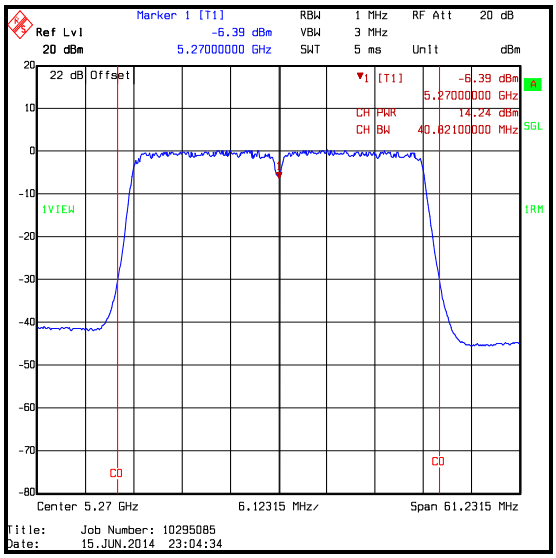


Top Channel

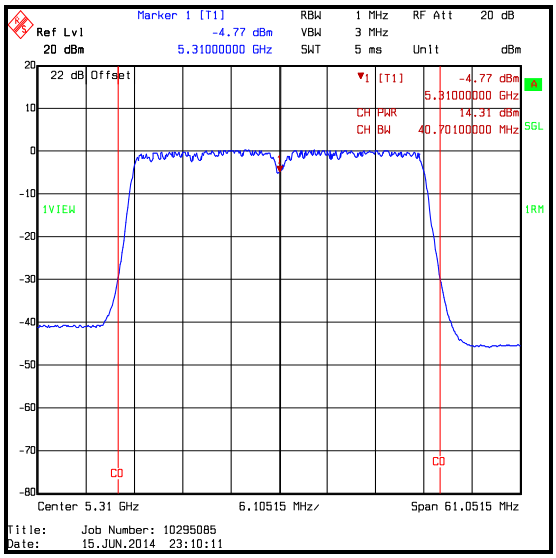
Transmitter Maximum Conducted Output Power (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11n / 40 MHz / BPSK / 13.5 Mbps / MCS0 / 5.25-5.35 GHz band

Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5270	14.2	24.0	9.8	Complied
Top	5310	14.3	24.0	9.7	Complied



Bottom Channel

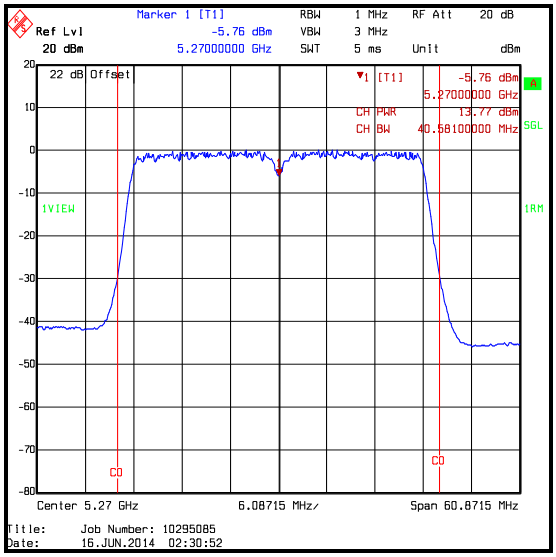


Top Channel

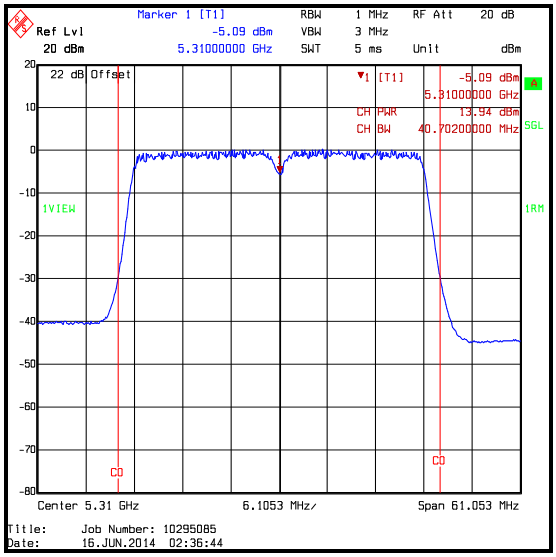
Transmitter Maximum Conducted Output Power (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11ac / 40 MHz / QPSK / 27 Mbps / MCS1 / 5.25-5.35 GHz band

Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5270	13.8	0.1	13.9	24.0	10.1	Complied
Top	5310	13.9	0.1	14.0	24.0	10.0	Complied



Bottom Channel

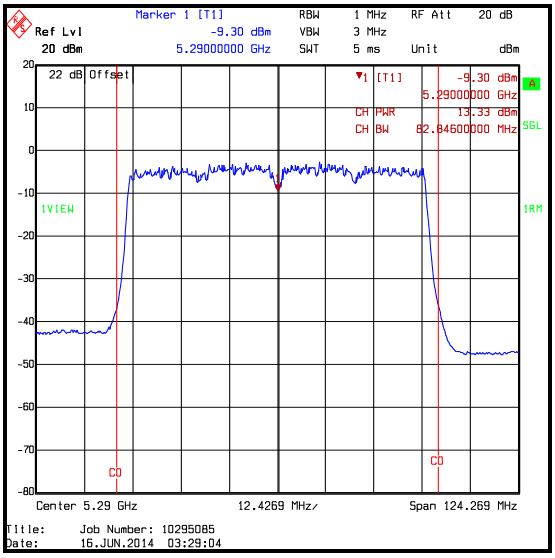


Top Channel

Transmitter Maximum Conducted Output Power (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11ac / 80 MHz / QPSK / 58.5 Mbps / MCS1 / 5.25-5.35 GHz band

Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5290	13.3	0.3	13.6	24.0	10.4	Complied

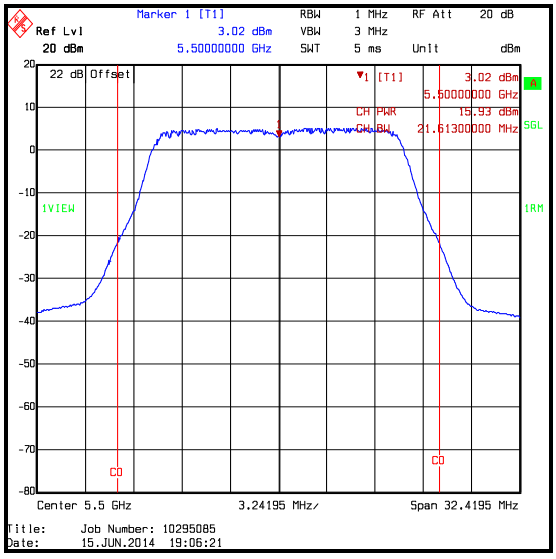


Single Channel

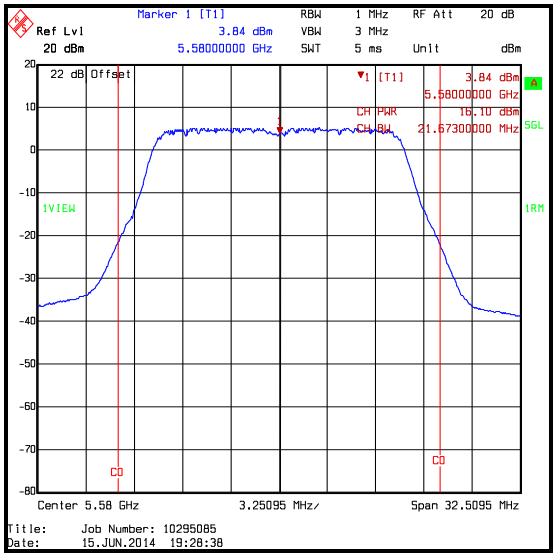
Transmitter Maximum Conducted Output Power (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11a / 20 MHz / QPSK / 12 Mbps / 5.47-5.725 GHz band

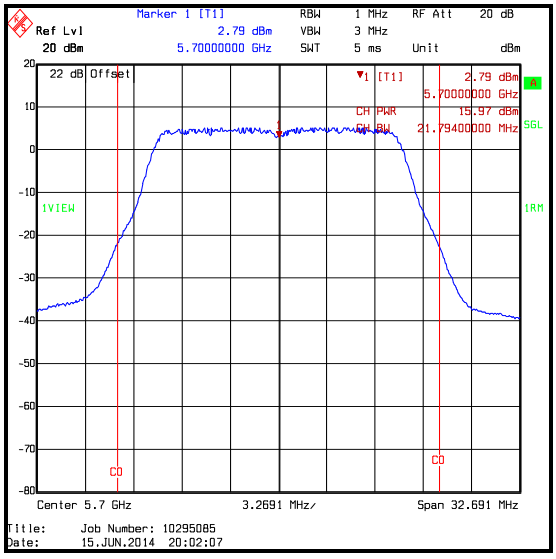
Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5500	15.9	0.1	16.0	24.0	8.0	Complied
Middle	5580	16.1	0.1	16.2	24.0	7.8	Complied
Top	5700	16.0	0.1	16.1	24.0	7.9	Complied



Bottom Channel



Middle Channel

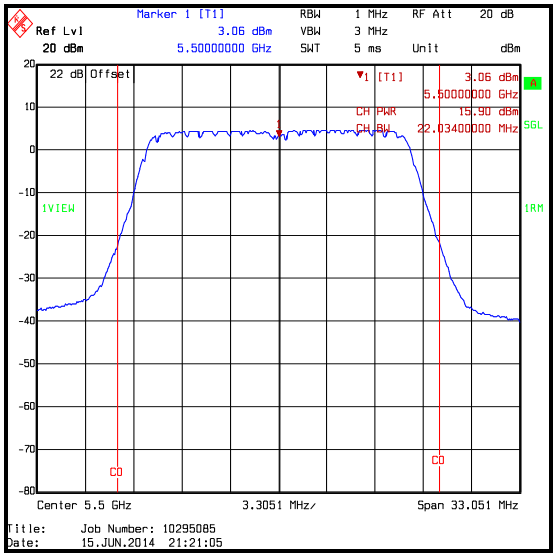


Top Channel

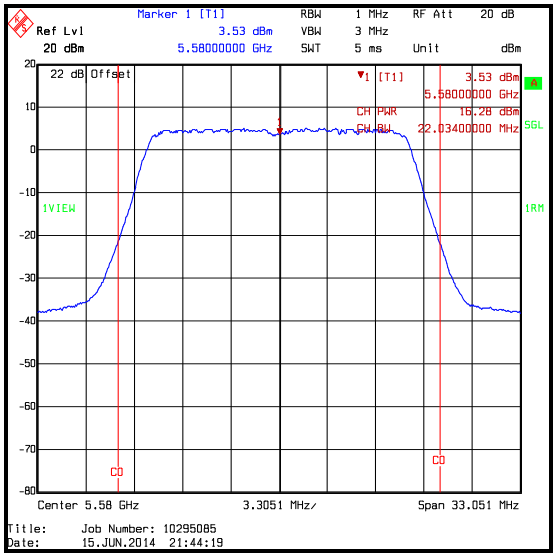
Transmitter Maximum Conducted Output Power (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11n / 20 MHz / BPSK / 6.5 Mbps / MCS0 / 5.47-5.725 GHz band

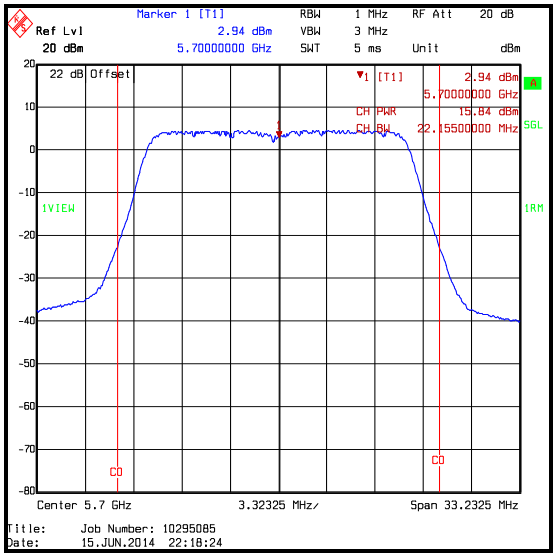
Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5500	15.9	24.0	8.1	Complied
Middle	5580	16.3	24.0	7.7	Complied
Top	5700	15.8	24.0	8.2	Complied



Bottom Channel



Middle Channel

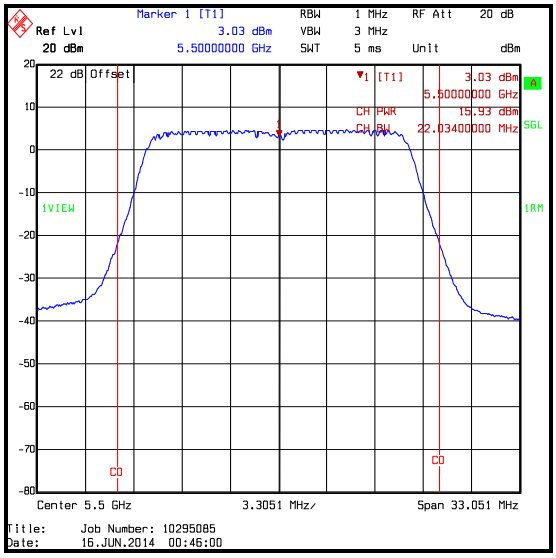


Top Channel

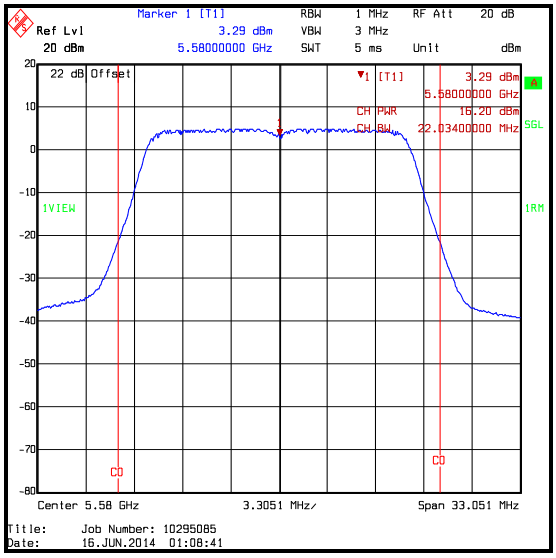
Transmitter Maximum Conducted Output Power (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11ac / 20 MHz / BPSK / 6.5 Mbps / MCS0 / 5.47-5.725 GHz band

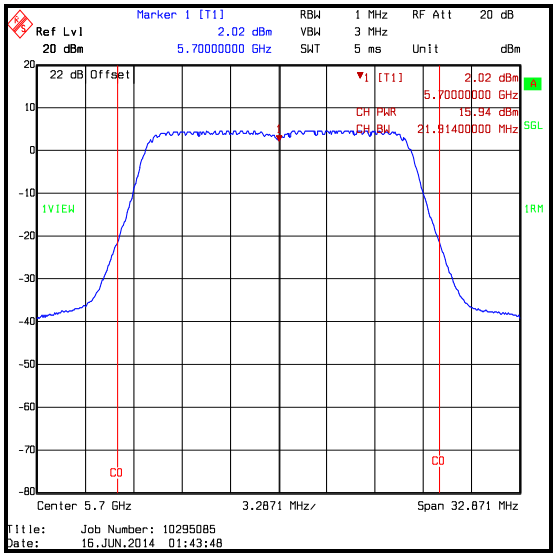
Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5500	15.9	24.0	8.1	Complied
Middle	5580	16.2	24.0	7.8	Complied
Top	5700	15.9	24.0	8.1	Complied



Bottom Channel



Middle Channel

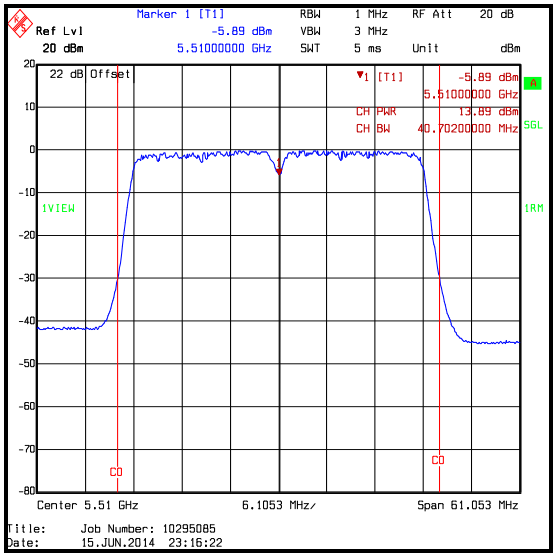


Top Channel

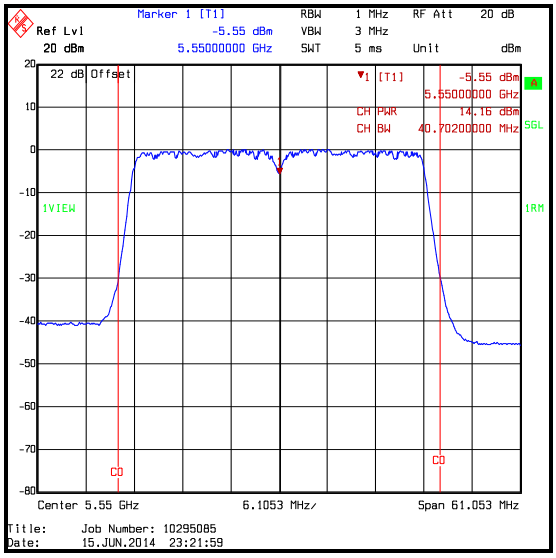
Transmitter Maximum Conducted Output Power (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11n / 40 MHz / BPSK / 13.5 Mbps / MCS0 / 5.47-5.725 GHz band

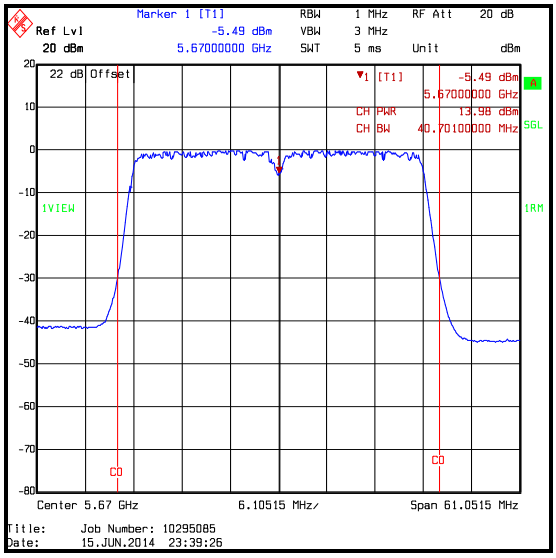
Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5510	13.9	24.0	10.1	Complied
Middle	5550	14.2	24.0	9.8	Complied
Top	5670	14.0	24.0	10.0	Complied



Bottom Channel



Middle Channel

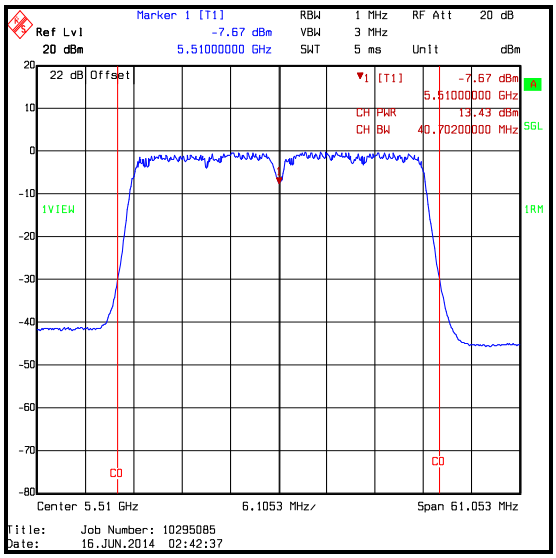


Top Channel

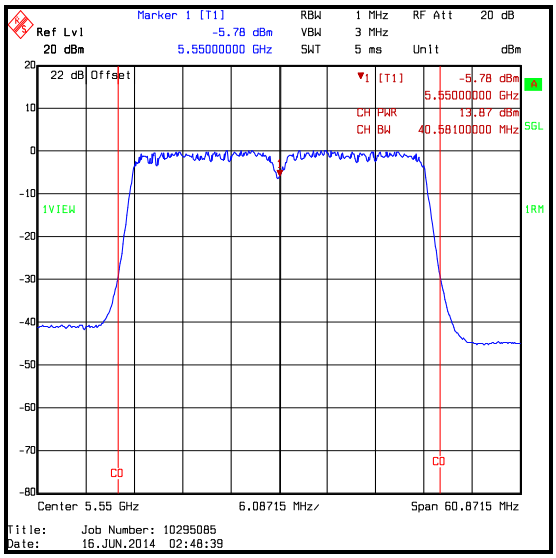
Transmitter Maximum Conducted Output Power (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11ac / 40 MHz / QPSK / 27 Mbps / MCS1 / 5.47-5.725 GHz band

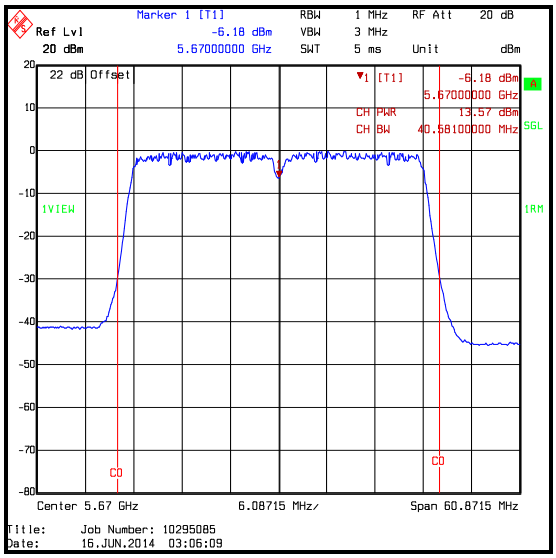
Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5510	13.4	0.1	13.5	24.0	10.5	Complied
Middle	5550	13.9	0.1	14.0	24.0	10.0	Complied
Top	5670	13.6	0.1	13.7	24.0	10.3	Complied



Bottom Channel



Middle Channel

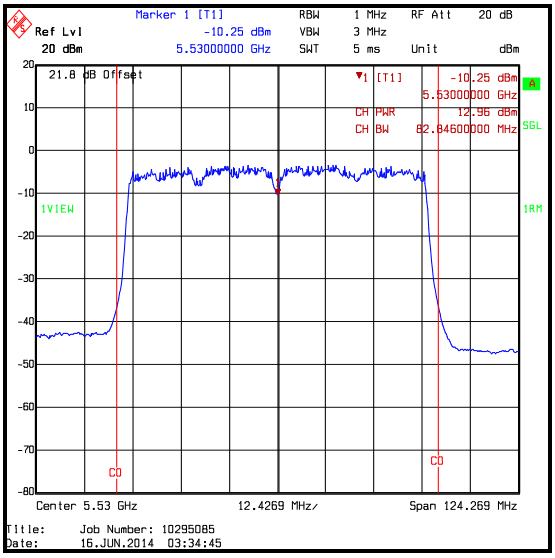


Top Channel

Transmitter Maximum Conducted Output Power (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11ac / 80 MHz / QPSK / 58.5 Mbps / MCS1 / 5.47-5.725 GHz band

Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5530	13.0	0.3	13.3	24.0	10.7	Complied



Single Channel

Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band)

Test Summary:

Test Engineer:	Nick Steele	**Test Date:**	16 June 2014
Test Sample IMEI:	004402452706116		

FCC Reference:	Part 15.407(a)(3)
Test Method Used:	As detailed in KDB 789033 D02 Section II.E.2.e)

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	47

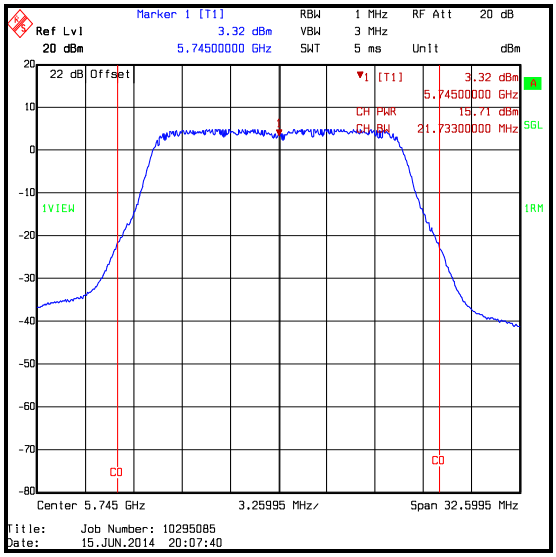
Note(s):

1. The FCC Part 15.407(a)(3) limit shall not exceed 1 W (30.0 dBm).

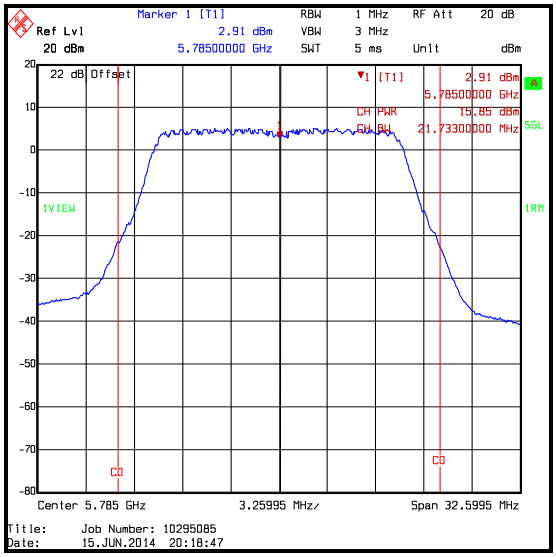
Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)

Results: 802.11a / 20 MHz / QPSK / 12 Mbps

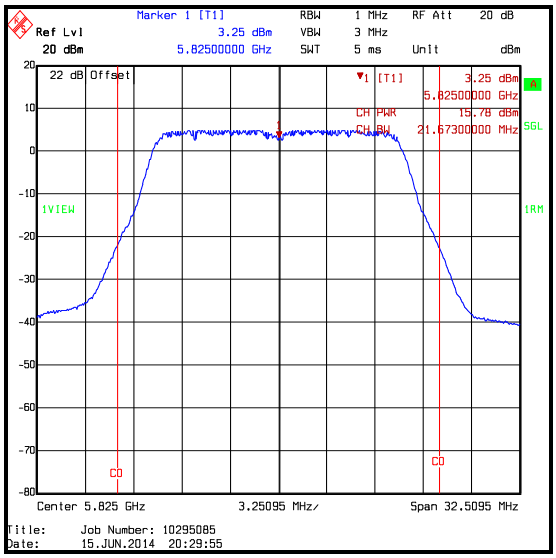
Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5745	15.7	0.1	15.8	30.0	14.2	Complied
Middle	5785	15.9	0.1	16.0	30.0	14.0	Complied
Top	5825	15.8	0.1	15.9	30.0	14.1	Complied



Bottom Channel



Middle Channel

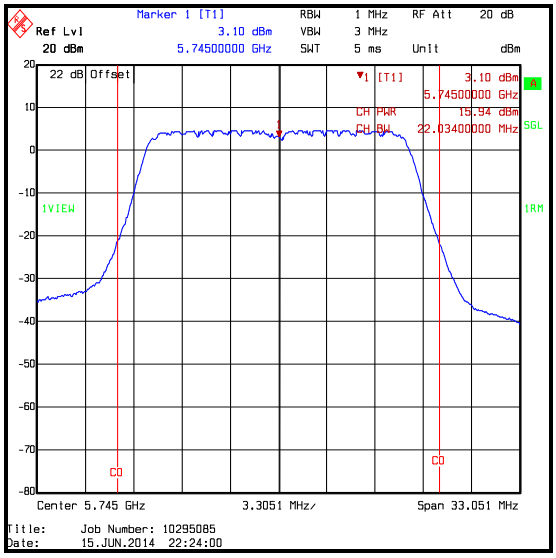


Top Channel

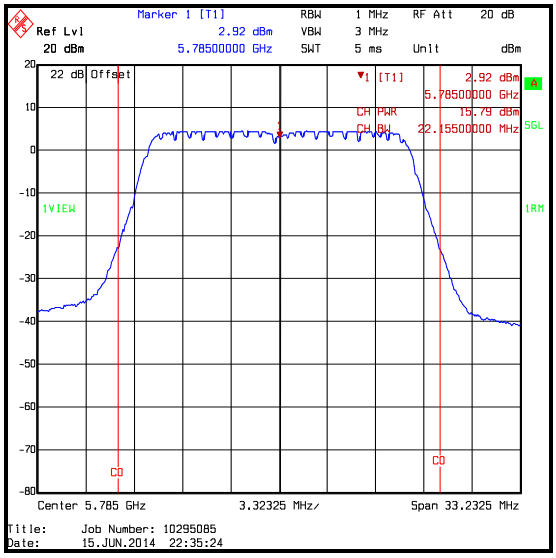
Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)

Results: 802.11n / 20 MHz / BPSK / 6.5 Mbps / MCS0

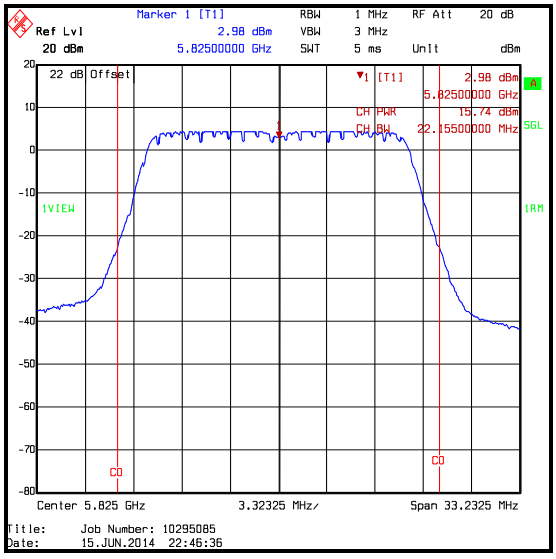
Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5745	15.9	30.0	14.1	Complied
Middle	5785	15.8	30.0	14.2	Complied
Top	5825	15.7	30.0	14.3	Complied



Bottom Channel



Middle Channel

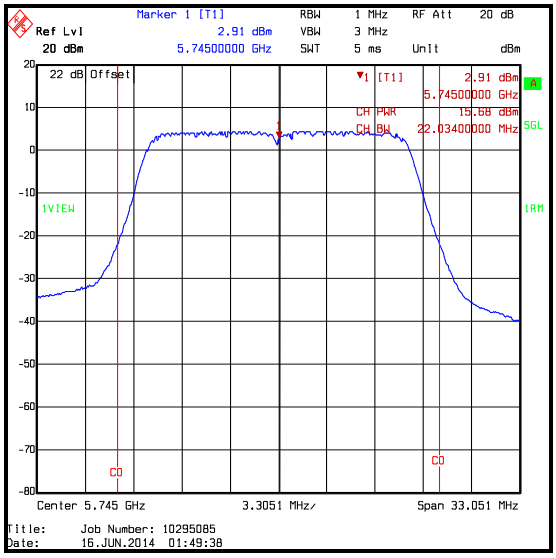


Top Channel

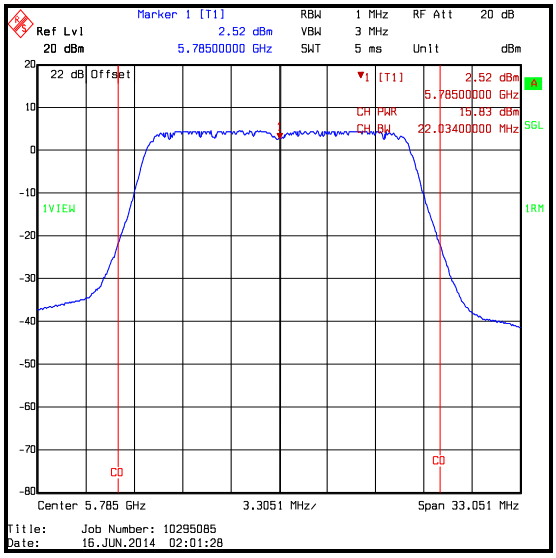
Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)

Results: 802.11ac / 20 MHz / BPSK / 6.5 Mbps / MCS0

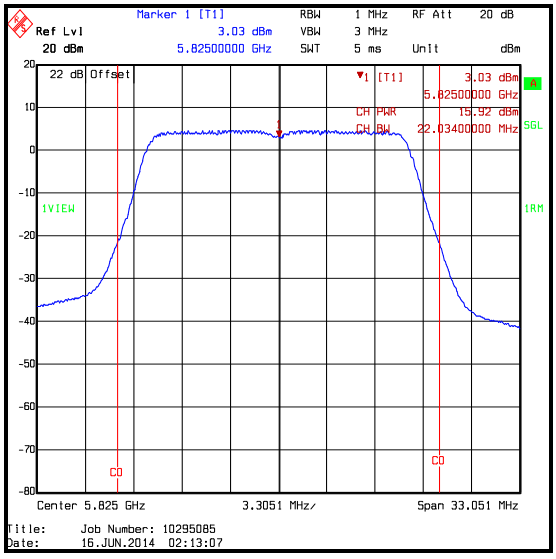
Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5745	15.7	30.0	14.3	Complied
Middle	5785	15.8	30.0	14.2	Complied
Top	5825	15.9	30.0	14.1	Complied



Bottom Channel



Middle Channel

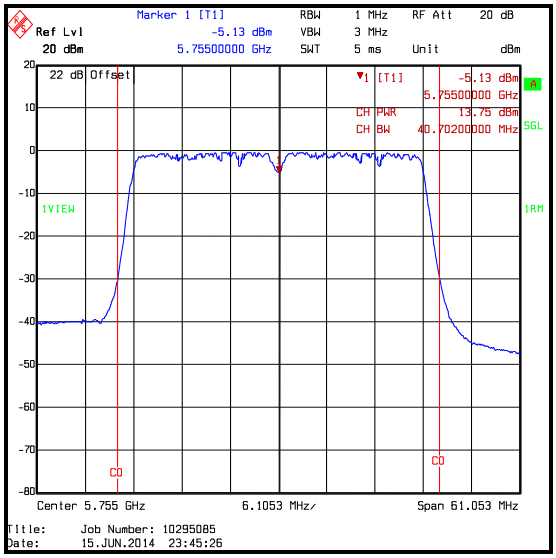


Top Channel

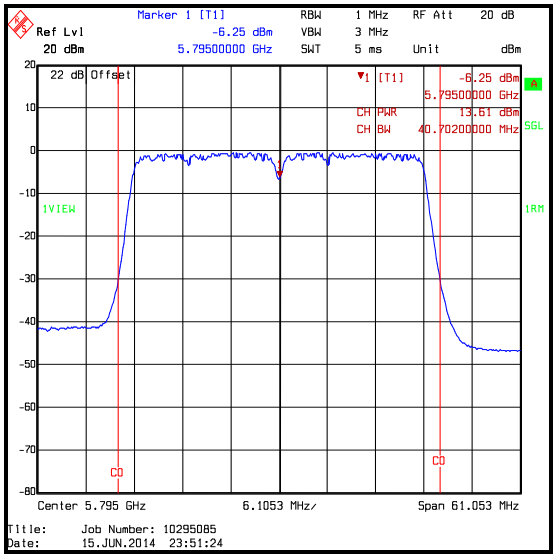
Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)

Results: 802.11n / 40 MHz / BPSK / 13.5 Mbps / MCS0

Channel	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5755	13.8	30.0	16.2	Complied
Top	5795	13.6	30.0	16.4	Complied



Bottom Channel

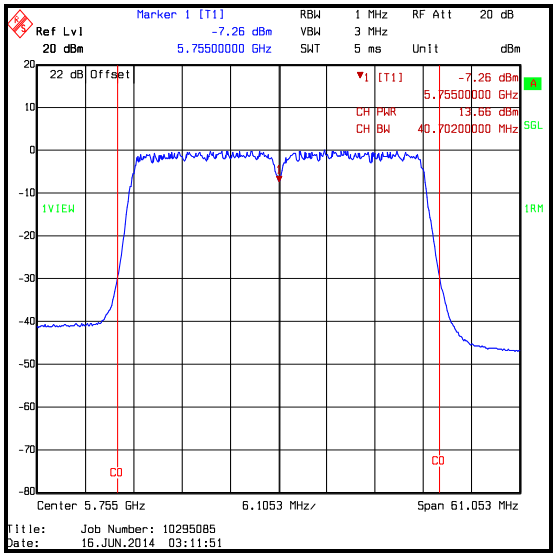


Top Channel

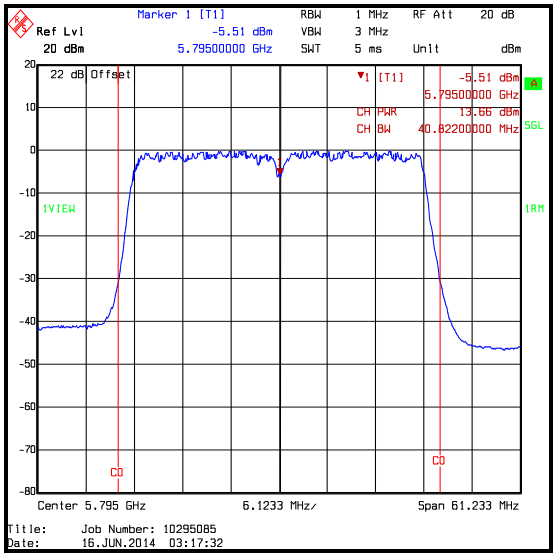
Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)

Results: 802.11ac / 40 MHz / QPSK / 27 Mbps / MCS1

Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5755	13.7	0.1	13.8	30.0	16.2	Complied
Top	5795	13.7	0.1	13.8	30.0	16.2	Complied



Bottom Channel

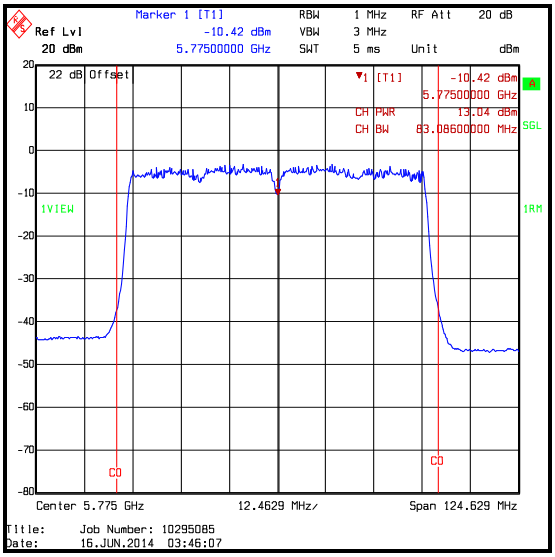


Top Channel

Transmitter Maximum Conducted Output Power (5.725-5.85 GHz band) (continued)

Results: 802.11ac / 80 MHz / QPSK / 58.5 Mbps / MCS1

Channel	Frequency (MHz)	Conducted Power (dBm)	Duty cycle correction factor (dB)	Corrected Conducted Power (dBm)	Limit (dBm)	Margin (dB)	Result
Single	5775	13.0	0.3	13.3	30.0	16.7	Complied



Single Channel

Transmitter Maximum Conducted Output Power (continued)

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1657	Thermohygrometer	JM Handelspunkt	30.5015.13	Not stated	14 Mar 2015	12
M127	Spectrum Analyser	Rohde & Schwarz	FSEB 30	842 659/016	19 Aug 2014	12
A1998	Attenuator	Huber & Suhner	6820.17.B	07101	Calibrated before use	-
G0608	Signal Generator	Rohde & Schwarz	SMIQ 06B	838341/033	14 Feb 2015	12
M199	Power Meter	Rohde & Schwarz	NRVS	827023/075	08 Apr 2016	24
M1267	Power Sensor	Rohde & Schwarz	NRV-Z52	100155	23 Apr 2016	24
A1256	Power Supply Unit	Farnell	11E30/1B	000378	Calibrated before use	-
M1229	Multimeter	Fluke	179	87640015	24 Apr 2015	12

5.2.6. Transmitter Maximum Power Spectral Density

Test Summary:

Test Engineer:	Nick Steele	**Test Dates:**	15 June 2014 & 16 June 2014
Test Sample IMEI:	004402452706116		

FCC Reference:	Part 15.407(a)(1)(iv)
Test Method Used:	As detailed in KDB 789033 D02 Section II.F. referencing II.E.2.e)

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	48

Note(s):

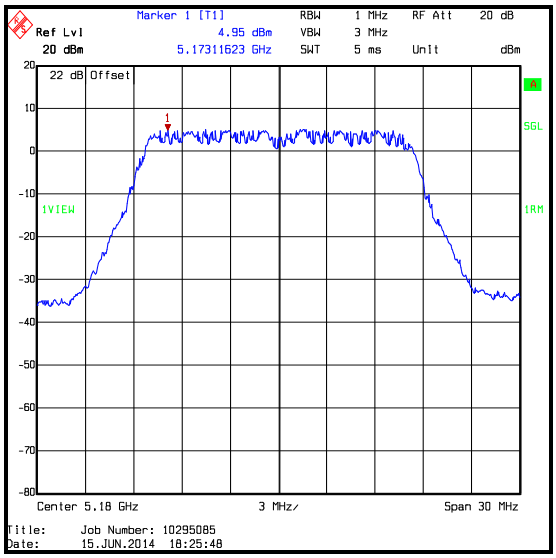
1. Transmitter Maximum Power Spectral Density tests in all bands were performed using a test receiver in accordance with KDB 789033 II. F referencing II.E.2.e) Method SA-2 Alternative.
2. All supported modes and channel widths were initially investigated on one channel. The modes that produced the highest power and therefore deemed worst case were:
    - 802.11a – 64QAM / 54 Mbps
    - 802.11n HT20 – 64QAM / 58.5 Mbps / MCS6 (GI = 800 ns)
    - 802.11n HT40 – QPSK / 40.5 Mbps / MCS2 (GI = 800 ns)
    - 802.11ac VHT20 – 64QAM / 52 Mbps / MCS5 (GI = 800 ns)
    - 802.11ac VHT40 – 64QAM / 108 Mbps / MCS5 (GI = 800 ns)
    - 802.11ac VHT80 – QPSK / 87.8 Mbps / MCS2 (GI = 800 ns)

    Measurements were then performed in these modes on bottom, middle and top channels in all operating bands.
3. For data rates where the EUT was transmitting at <98% duty cycle, the calculated duty cycle in section 5.2.4 was added to the measured maximum power spectral density in order to compute the average maximum power spectral density during the actual transmission time.
4. The EUT antenna has a gain of <6 dBi.
5. The spectrum analyser was connected to the RF port on the EUT using suitable attenuation and RF cable. An RF level offset was entered on the spectrum analyser to compensate for the loss of the attenuator and RF cable.

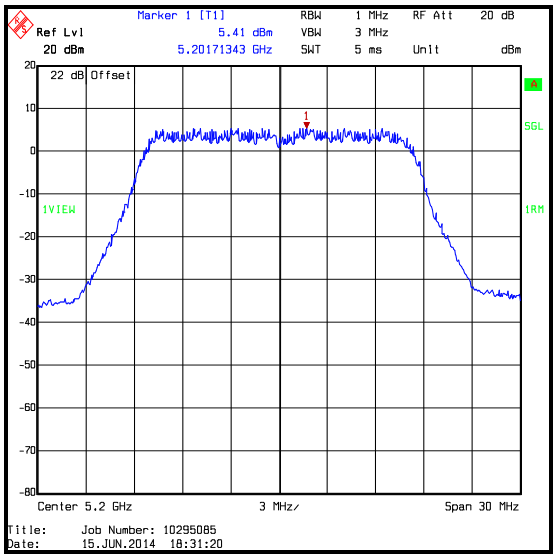
Transmitter Maximum Power Spectral Density (5.15-5.25 GHz band) (continued)

Results: 802.11a / 20 MHz / 64QAM / 54 Mbps

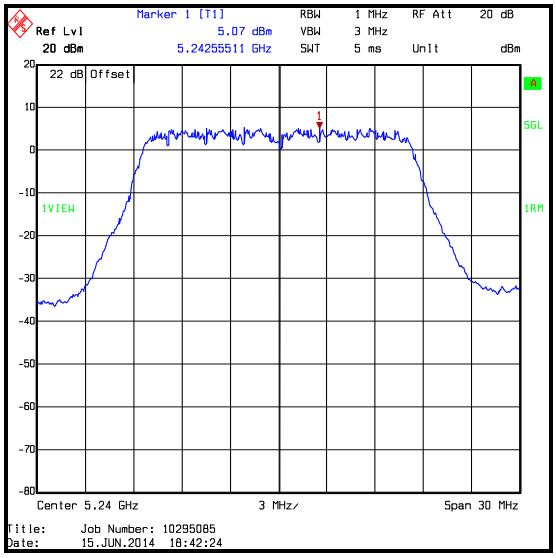
Channel	Frequency (MHz)	PPSD (dBm /MHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	5180	5.0	0.3	5.3	11.0	5.7	Complied
Middle	5200	5.4	0.3	5.7	11.0	5.3	Complied
Top	5240	5.1	0.3	5.4	11.0	5.6	Complied



Bottom Channel



Middle Channel

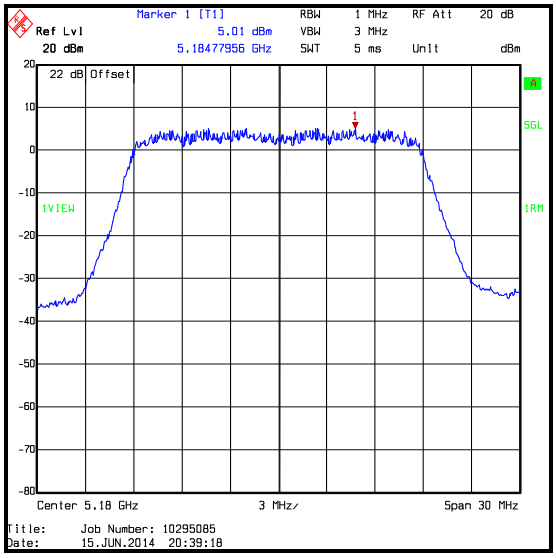


Top Channel

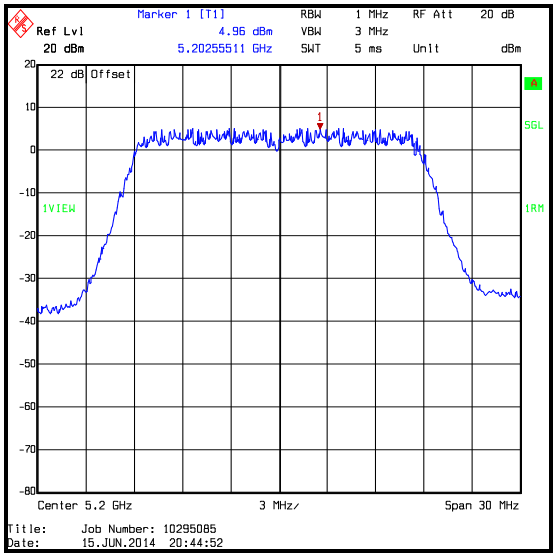
Transmitter Maximum Power Spectral Density (5.15-5.25 GHz band) (continued)

Results: 802.11n / 20 MHz / 64QAM / 58.5 Mbps / MCS6

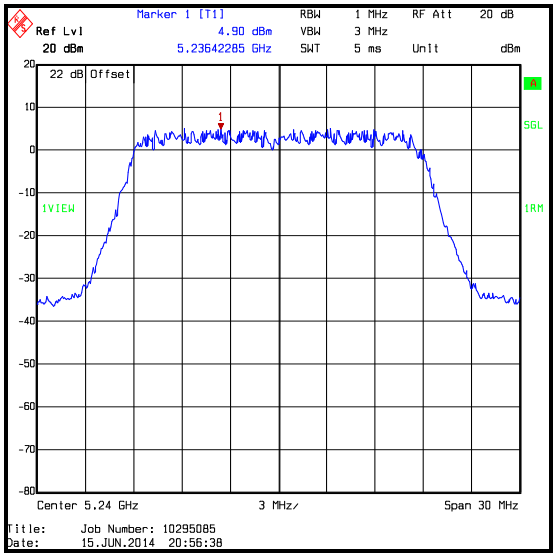
Channel	Frequency (MHz)	PPSD (dBm /MHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	5180	5.0	0.3	5.3	11.0	5.7	Complied
Middle	5200	5.0	0.3	5.3	11.0	5.7	Complied
Top	5240	4.9	0.3	5.2	11.0	5.8	Complied



Bottom Channel



Middle Channel

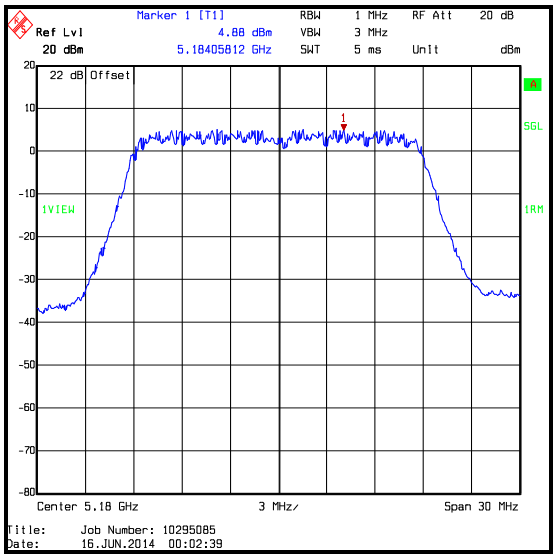


Top Channel

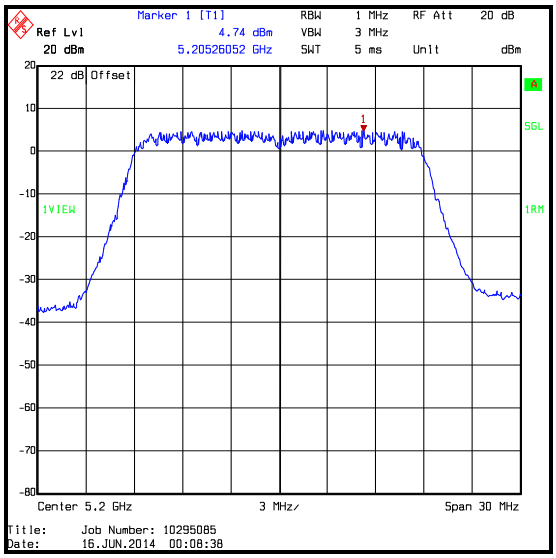
Transmitter Maximum Power Spectral Density (5.15-5.25 GHz band) (continued)

Results: 802.11ac / 20 MHz / 64QAM / 52 Mbps / MCS5

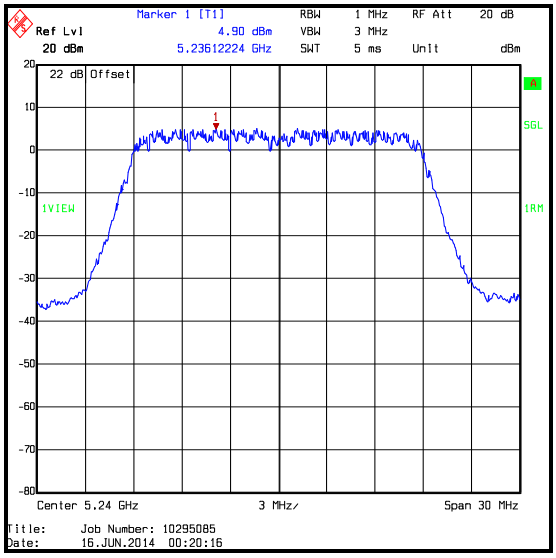
Channel	Frequency (MHz)	PPSD (dBm /MHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	5180	4.9	0.2	5.1	11.0	5.9	Complied
Middle	5200	4.7	0.2	4.9	11.0	6.1	Complied
Top	5240	4.9	0.2	5.1	11.0	5.9	Complied



Bottom Channel



Middle Channel

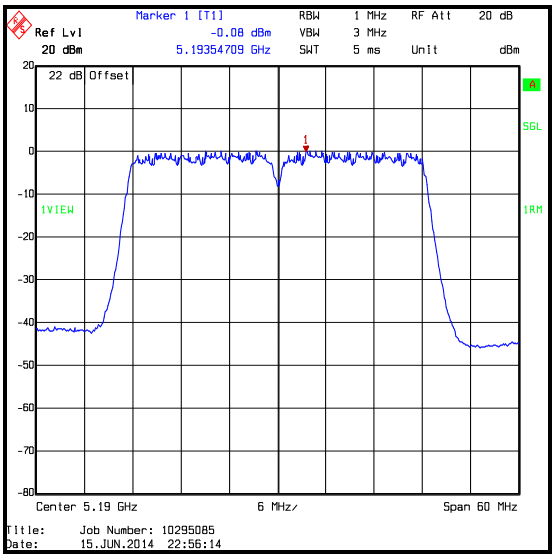


Top Channel

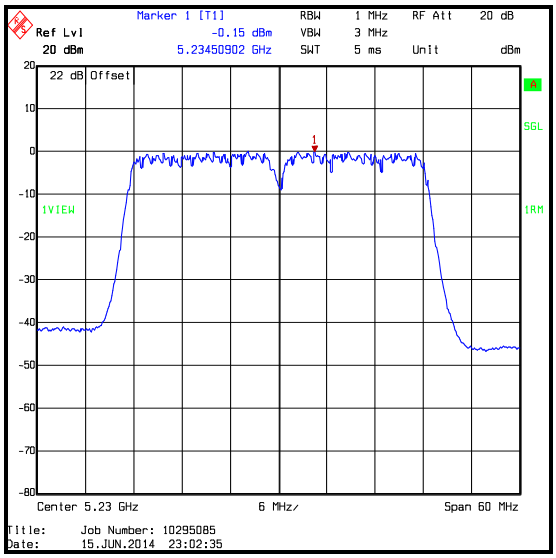
Transmitter Maximum Power Spectral Density (5.15-5.25 GHz band) (continued)

Results: 802.11n / 40 MHz / QPSK / 40.5 Mbps / MCS2

Channel	Frequency (MHz)	PPSD (dBm /MHz)	Duty cycle correction	Corrected PPSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	5190	-0.1	0.2	0.1	11.0	10.9	Complied
Top	5230	-0.2	0.2	0.0	11.0	11.0	Complied



Bottom Channel

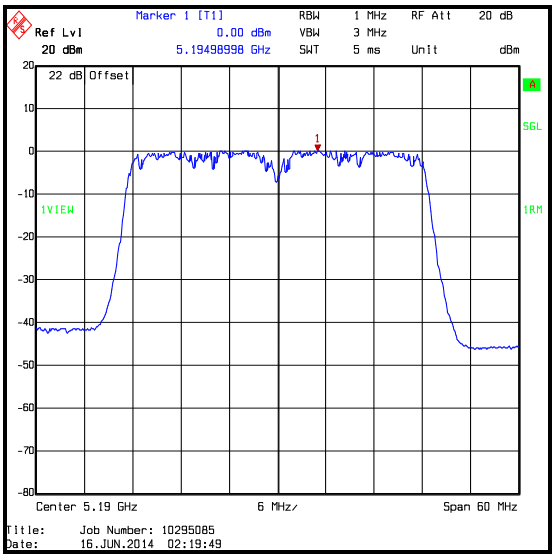


Top Channel

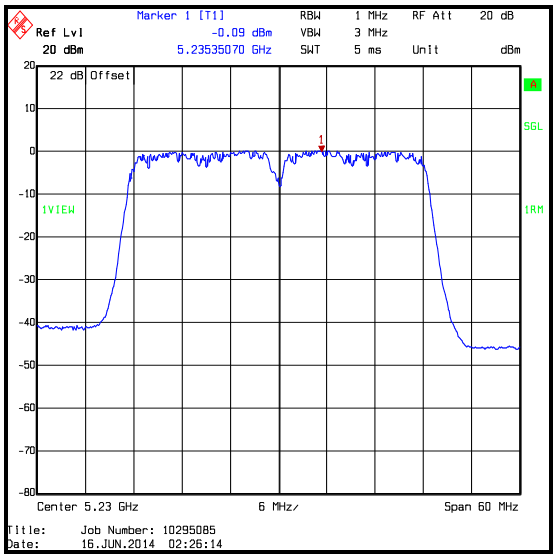
Transmitter Maximum Power Spectral Density (5.15-5.25 GHz band) (continued)

Results: 802.11ac / 40 MHz / 64QAM / 108 Mbps / MCS5

Channel	Frequency (MHz)	PPSD (dBm /MHz)	Duty cycle correction	Corrected PPSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	5190	0.0	0.4	0.4	11.0	10.6	Complied
Top	5230	-0.1	0.4	0.3	11.0	10.7	Complied



Bottom Channel

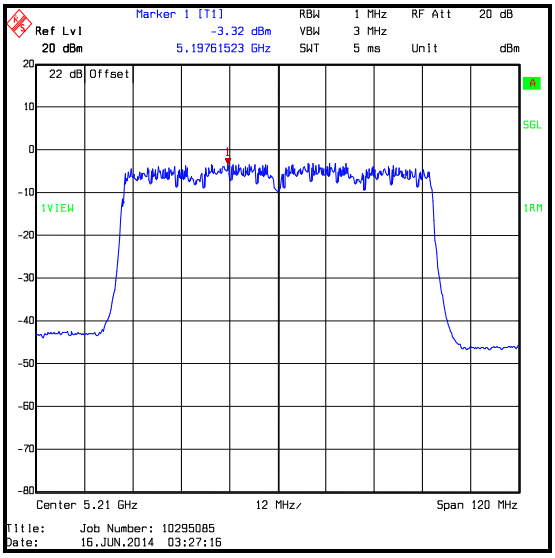


Top Channel

Transmitter Maximum Power Spectral Density (5.15-5.25 GHz band) (continued)

Results: 802.11ac / 80 MHz / QPSK / 87.8 Mbps / MCS2

Channel	Frequency (MHz)	PPSD (dBm /MHz)	Duty cycle correction	Corrected PPSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Single	5210	-3.3	0.3	-3.0	11.0	14.0	Complied



Single Channel

Transmitter Maximum Power Spectral Density (5.25-5.35 GHz & 5.47-5.725 GHz bands)

Test Summary:

Test Engineer:	Nick Steele	**Test Dates:**	15 June 2014 & 16 June 2014
Test Sample IMEI:	004402452706116		

FCC Reference:	Part 15.407(a)(2)
Test Method Used:	As detailed in KDB 789033 D02 Section II.F. referencing II.E.2.e)

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	47

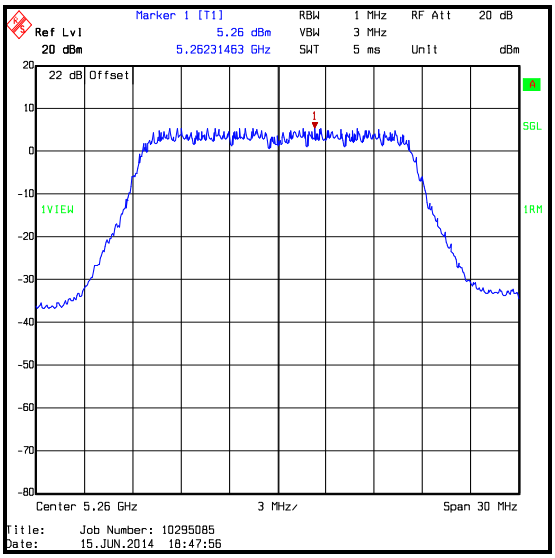
Note(s):

1. FCC Part 15.407(a)(2) limit for PPSD in the 5.25-5.35 GHz and 5.47-5.725 GHz operating bands is <11 dBm/MHz.

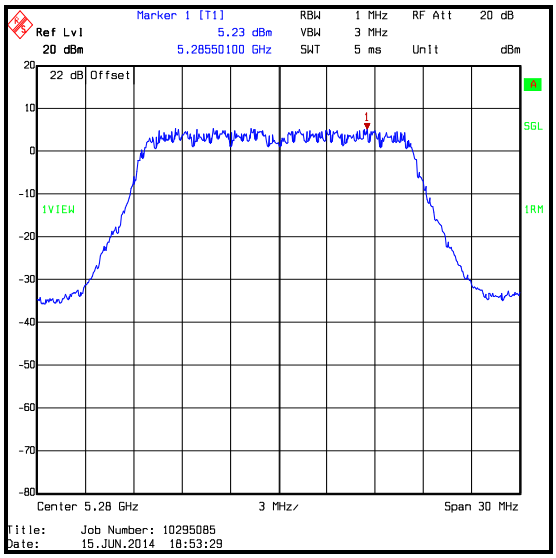
Transmitter Maximum Power Spectral Density (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11a / 20 MHz / 64QAM / 54 Mbps / 5.25-5.35 GHz band

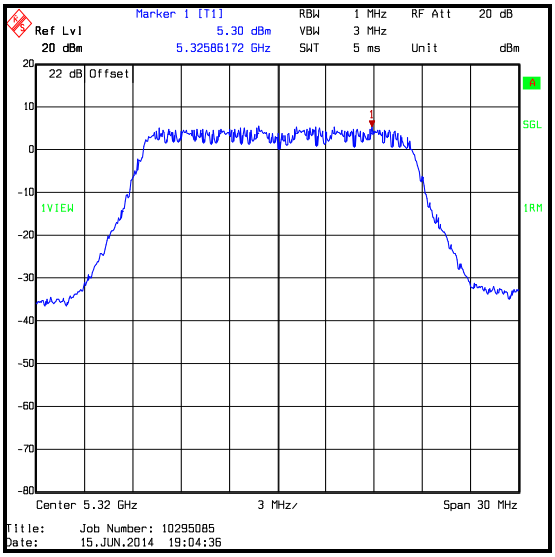
Channel	Frequency (MHz)	PPSD (dBm /MHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	5260	5.3	0.3	5.6	11.0	5.4	Complied
Middle	5280	5.2	0.3	5.5	11.0	5.5	Complied
Top	5320	5.3	0.3	5.6	11.0	5.4	Complied



Bottom Channel



Middle Channel

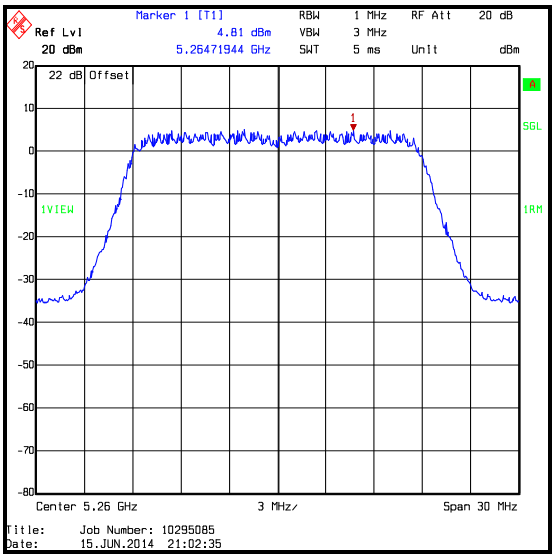


Top Channel

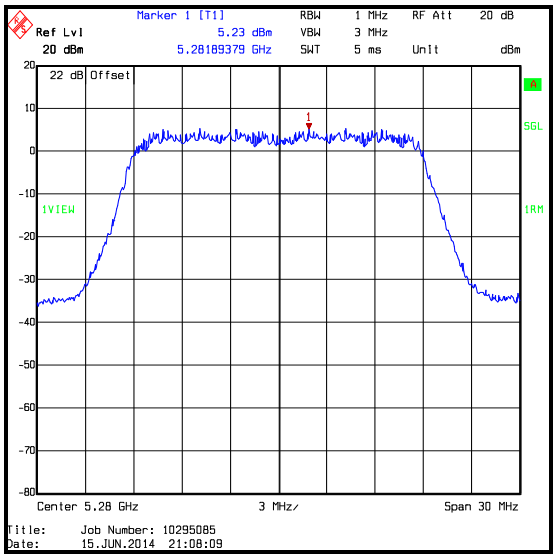
Transmitter Maximum Power Spectral Density (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11n / 20 MHz / 64QAM / 58.5 Mbps / MCS6 / 5.25-5.35 GHz band

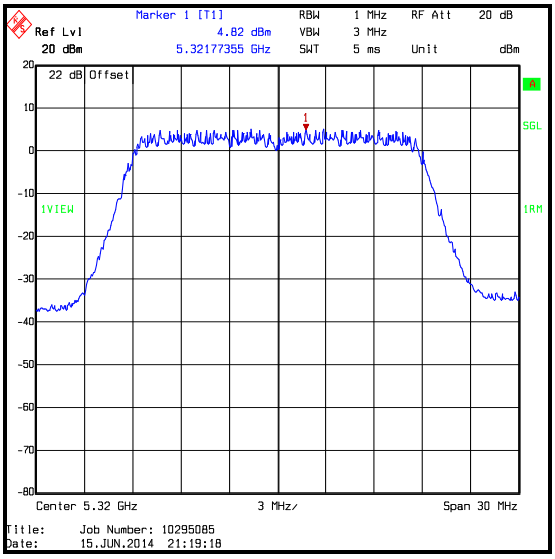
Channel	Frequency (MHz)	PPSD (dBm /MHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	5260	4.8	0.3	5.1	11.0	5.9	Complied
Middle	5280	5.2	0.3	5.5	11.0	5.5	Complied
Top	5320	4.8	0.3	5.1	11.0	5.9	Complied



Bottom Channel



Middle Channel

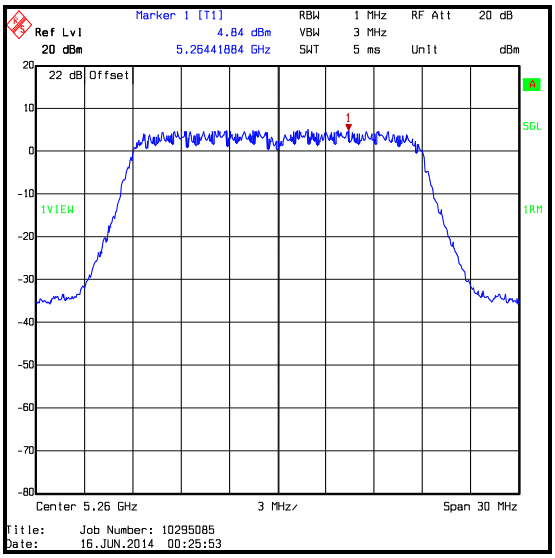


Top Channel

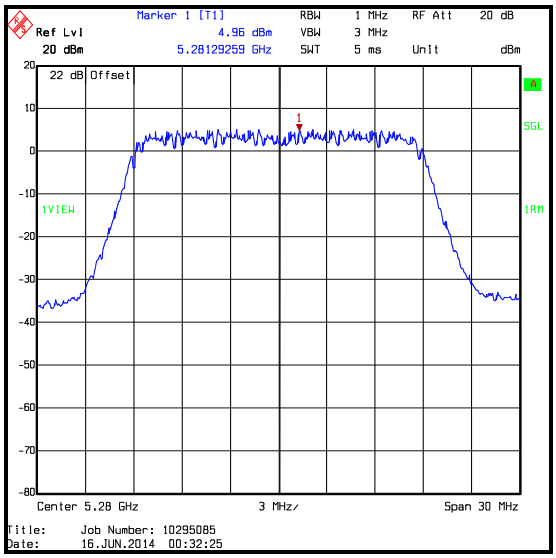
Transmitter Maximum Power Spectral Density (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11ac / 20 MHz / 64QAM / 52 Mbps / MCS5 / 5.25-5.35 GHz band

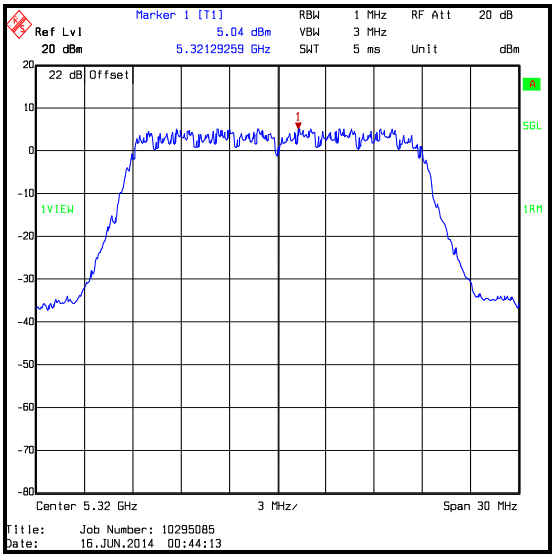
Channel	Frequency (MHz)	PPSD (dBm /MHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	5260	4.8	0.2	5.0	11.0	6.0	Complied
Middle	5280	5.0	0.2	5.2	11.0	5.8	Complied
Top	5320	5.0	0.2	5.2	11.0	5.8	Complied



Bottom Channel



Middle Channel

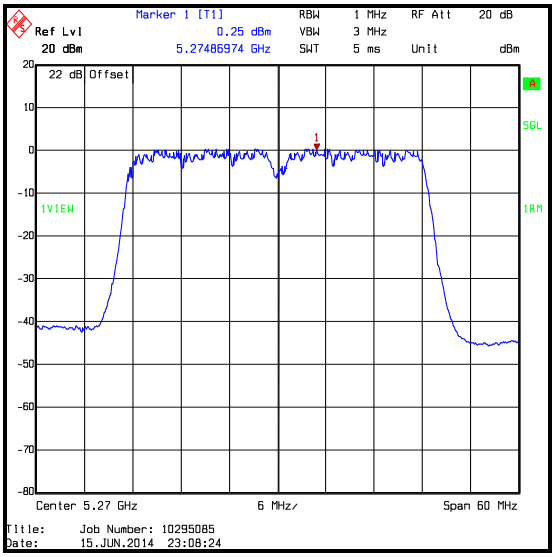


Top Channel

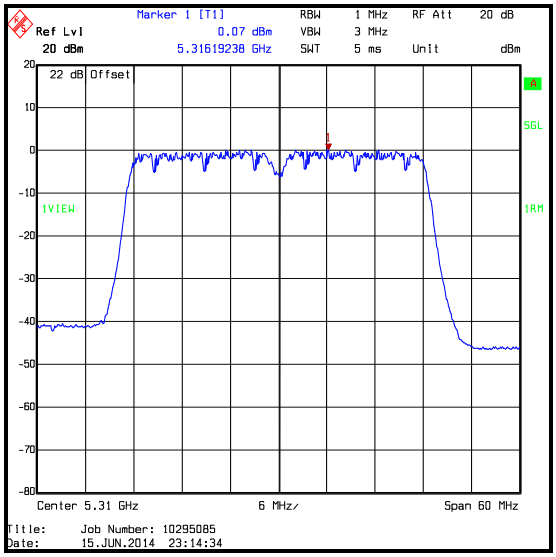
Transmitter Maximum Power Spectral Density (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11n / 40 MHz / QPSK / 40.5 Mbps / MCS2 / 5.25-5.35 GHz band

Channel	Frequency (MHz)	PPSD (dBm /MHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	5270	0.3	0.2	0.5	11.0	10.5	Complied
Top	5310	0.1	0.2	0.3	11.0	10.7	Complied



Bottom Channel

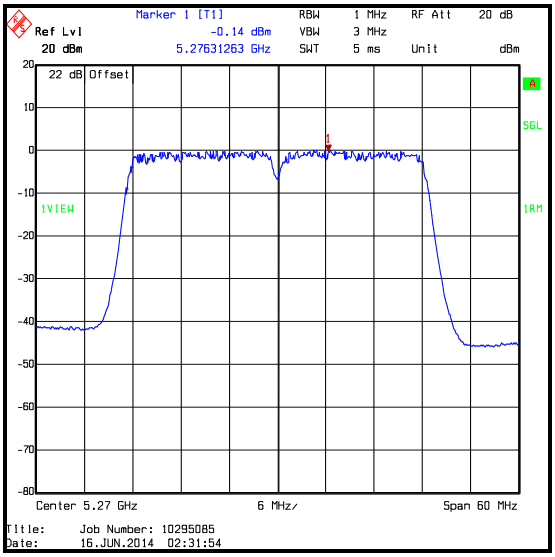


Top Channel

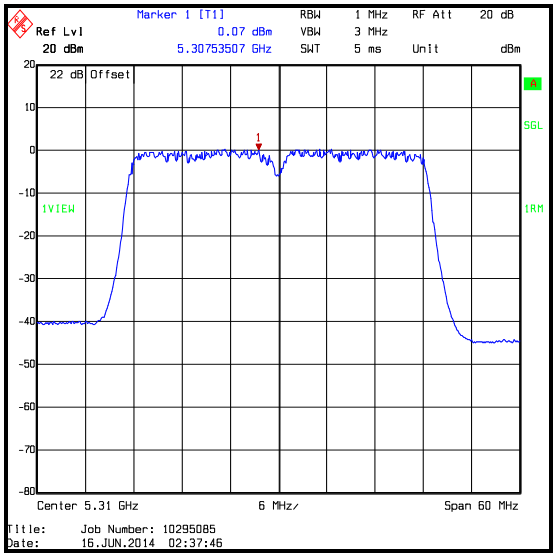
Transmitter Maximum Power Spectral Density (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11ac / 40 MHz / 64QAM / 108 Mbps / MCS5 / 5.25-5.35 GHz band

Channel	Frequency (MHz)	PPSD (dBm /MHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	5270	-0.1	0.4	0.3	11.0	10.7	Complied
Top	5310	0.1	0.4	0.5	11.0	10.5	Complied



Bottom Channel

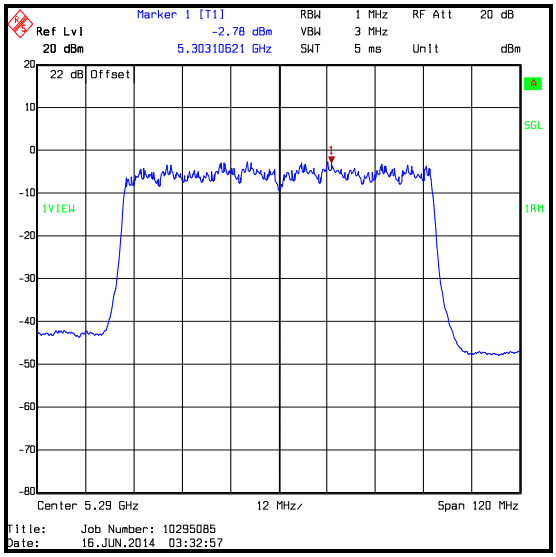


Top Channel

Transmitter Maximum Power Spectral Density (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11ac / 80 MHz / QPSK / 87.8 Mbps / MCS2/ 5.25-5.35 GHz band

Channel	Frequency (MHz)	PPSD (dBm /MHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Single	5290	-2.8	0.3	-2.5	11.0	13.5	Complied

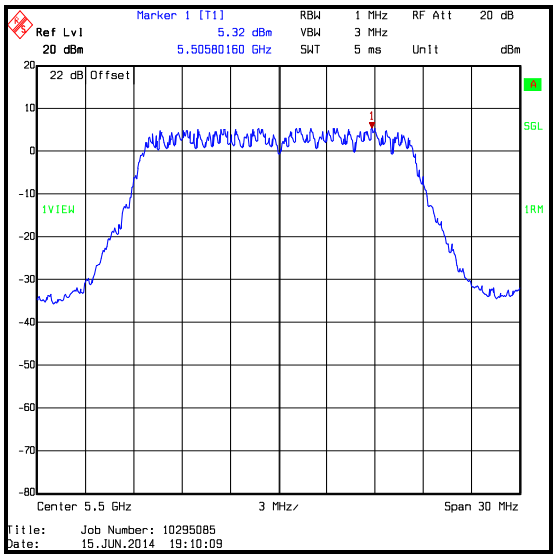


Single Channel

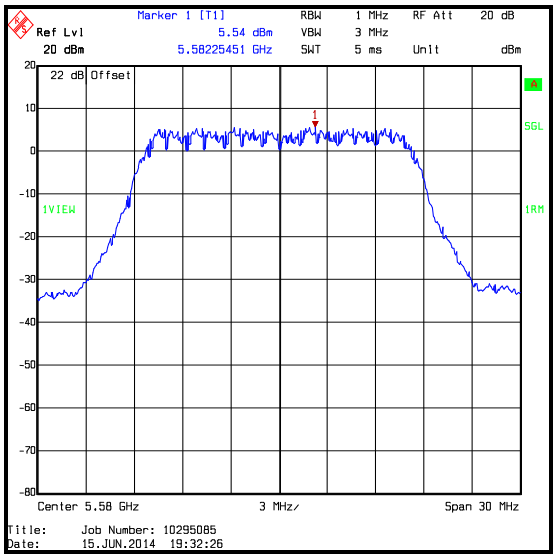
Transmitter Maximum Power Spectral Density (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11a / 20 MHz / 64QAM / 54 Mbps / 5.47-5.725 GHz band

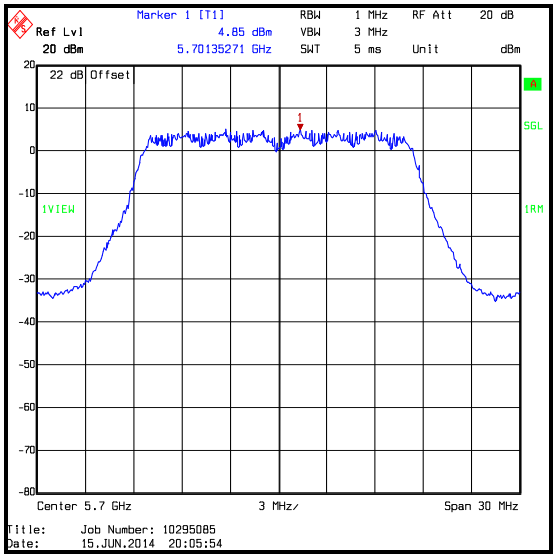
Channel	Frequency (MHz)	PPSD (dBm /MHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	5500	5.3	0.3	5.6	11.0	5.4	Complied
Middle	5580	5.5	0.3	5.8	11.0	5.2	Complied
Top	5700	4.9	0.3	5.2	11.0	5.8	Complied



Bottom Channel



Middle Channel

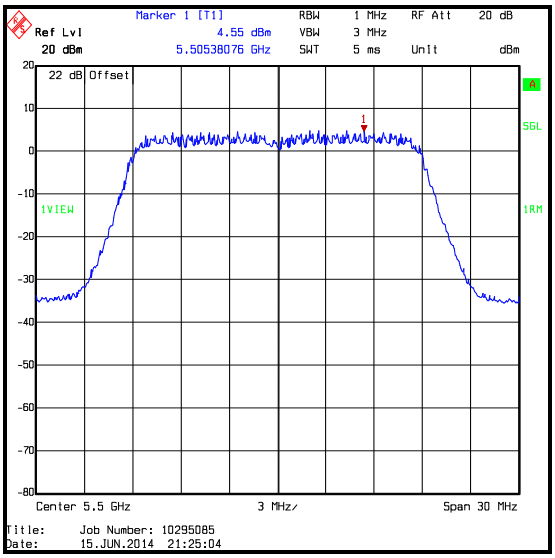


Top Channel

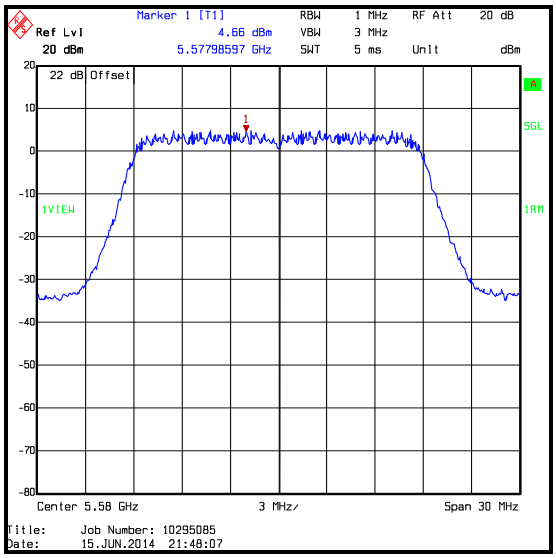
Transmitter Maximum Power Spectral Density (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11n / 20 MHz / 64QAM / 58.5 Mbps / MCS6 / 5.47-5.725 GHz band

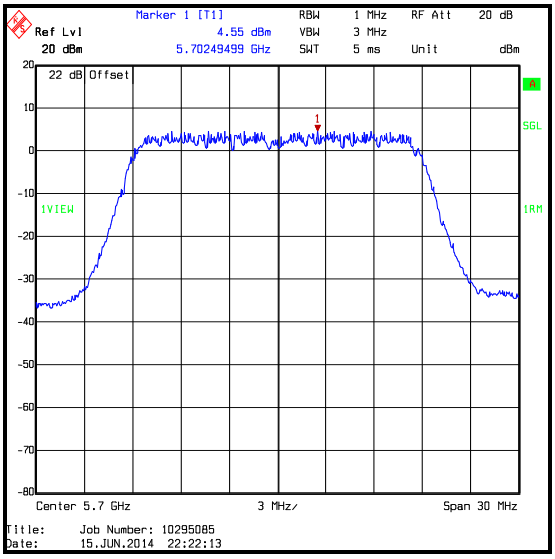
Channel	Frequency (MHz)	PPSD (dBm /MHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	5500	4.6	0.3	4.9	11.0	6.1	Complied
Middle	5580	4.7	0.3	5.0	11.0	6.0	Complied
Top	5700	4.6	0.3	4.9	11.0	6.1	Complied



Bottom Channel



Middle Channel

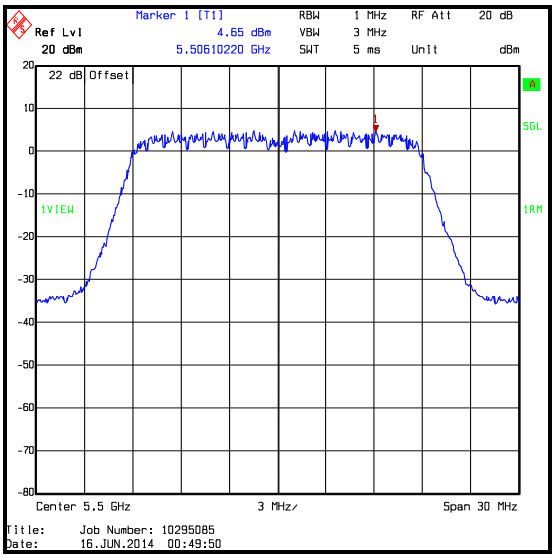


Top Channel

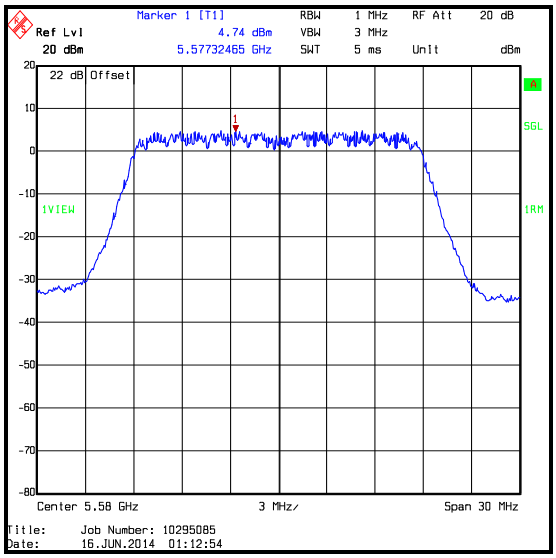
Transmitter Maximum Power Spectral Density (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11ac / 20 MHz / 64QAM / 52 Mbps / MCS5 / 5.47-5.725 GHz band

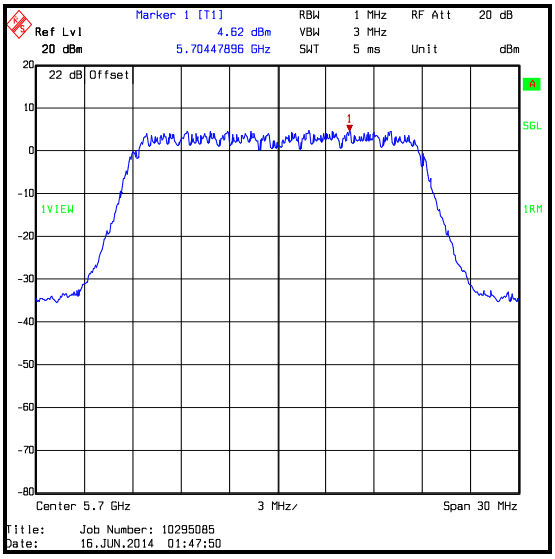
Channel	Frequency (MHz)	PPSD (dBm /MHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	5500	4.7	0.2	4.9	11.0	6.1	Complied
Middle	5580	4.7	0.2	4.9	11.0	6.1	Complied
Top	5700	4.6	0.2	4.8	11.0	6.2	Complied



Bottom Channel



Middle Channel

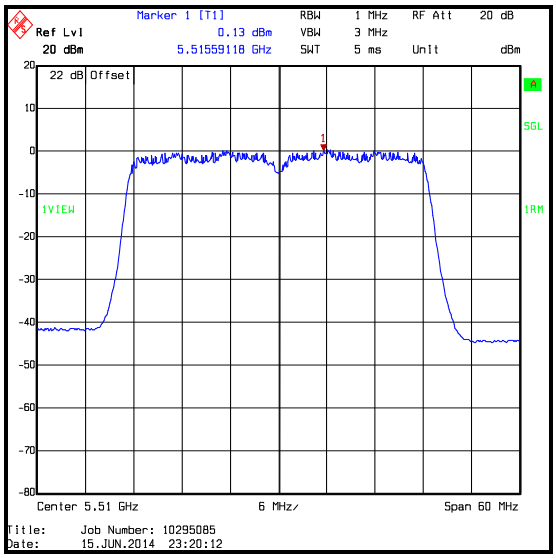


Top Channel

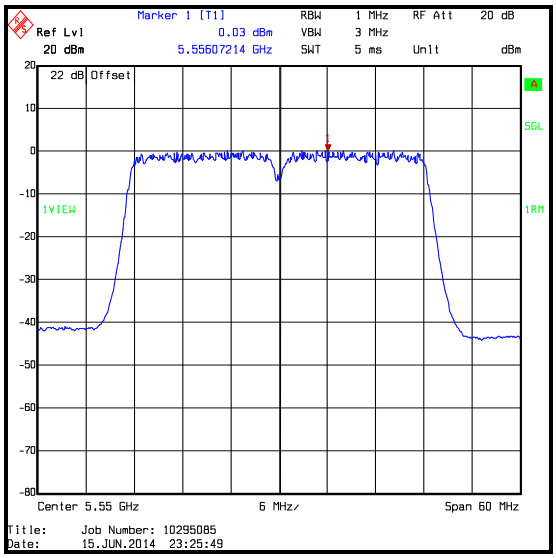
Transmitter Maximum Power Spectral Density (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11n / 40 MHz / QPSK / 40.5 Mbps / MCS2 / 5.47-5.725 GHz band

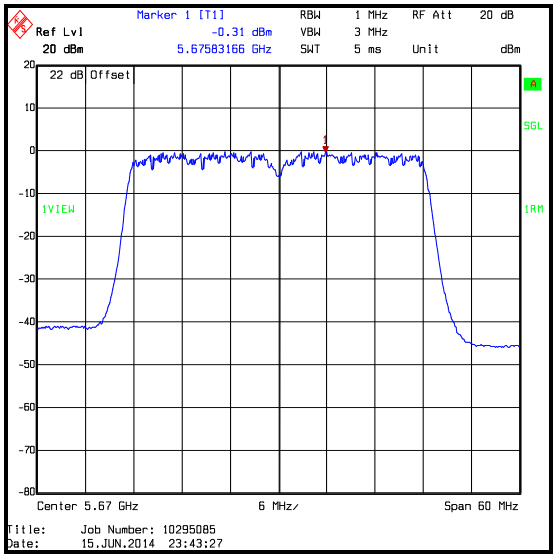
Channel	Frequency (MHz)	PPSD (dBm /MHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	5510	0.1	0.2	0.3	11.0	10.7	Complied
Middle	5550	0.0	0.2	0.2	11.0	10.8	Complied
Top	5670	-0.3	0.2	-0.1	11.0	11.1	Complied



Bottom Channel



Middle Channel

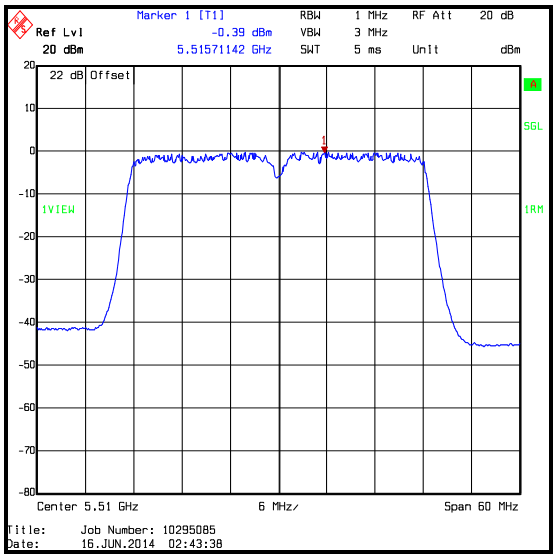


Top Channel

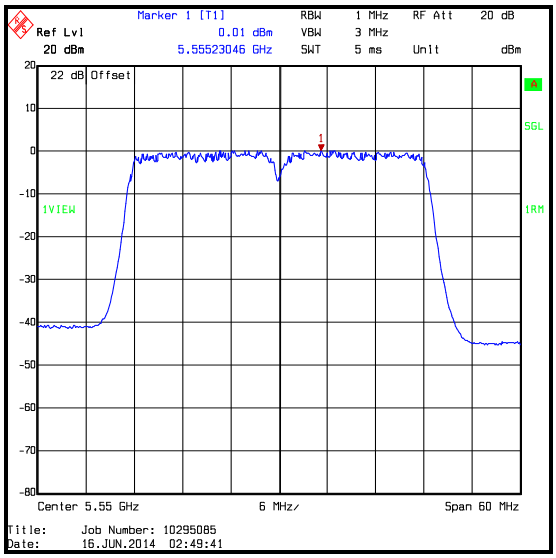
Transmitter Maximum Power Spectral Density (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11ac / 40 MHz / 64QAM / 108 Mbps / MCS5 / 5.47-5.725 GHz band

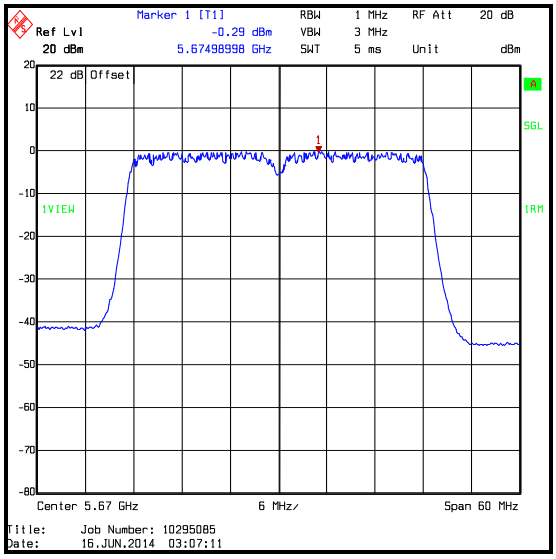
Channel	Frequency (MHz)	PPSD (dBm /MHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Bottom	5510	-0.4	0.4	0.0	11.0	11.0	Complied
Middle	5550	0.0	0.4	0.4	11.0	10.6	Complied
Top	5670	-0.3	0.4	0.1	11.0	10.9	Complied



Bottom Channel



Middle Channel

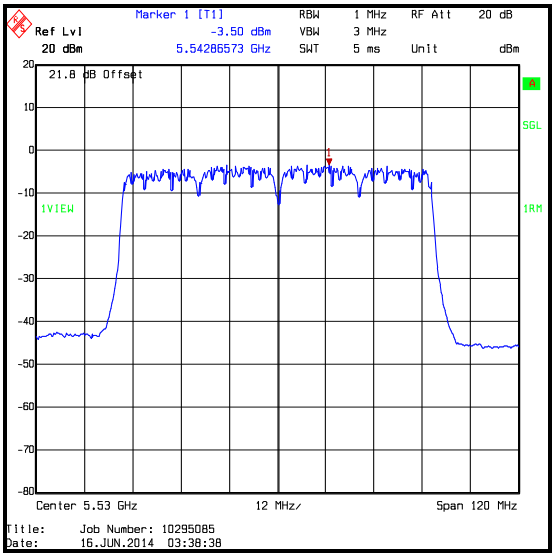


Top Channel

Transmitter Maximum Power Spectral Density (5.25-5.35 GHz & 5.47-5.725 GHz bands) (continued)

Results: 802.11ac / 80 MHz / QPSK / 87.8 Mbps / MCS2 / 5.47-5.725 GHz band

Channel	Frequency (MHz)	PPSD (dBm /MHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm /MHz)	Limit (dBm /MHz)	Margin (dB)	Result
Single	5530	-3.5	0.3	-3.2	11.0	14.2	Complied



Single Channel

Transmitter Maximum Power Spectral Density (5.725-5.85 GHz band)

Test Summary:

Test Engineer:	Nick Steele	**Test Date:**	16 June 2014
Test Sample IMEI:	004402452706116		

FCC Reference:	Part 15.407(a)(3)
Test Method Used:	As detailed in KDB 789033 D02 Section II.F. referencing II.E.2.e)

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	40

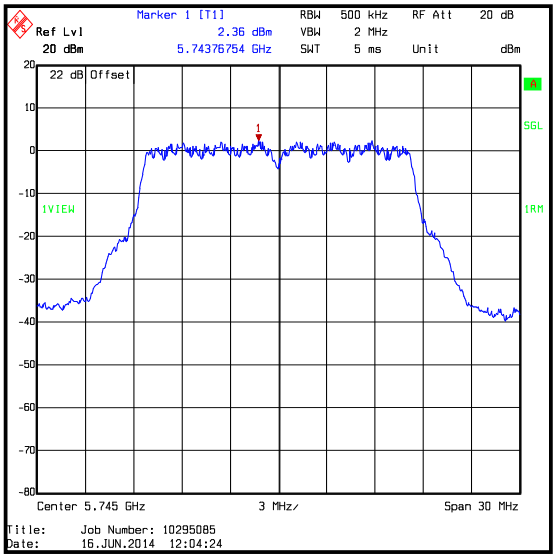
Note(s):

1. FCC Part 15.407(a)(3) limit for PPSD in the 5.725-5.85 GHz operating band is <30 dBm/500 kHz.

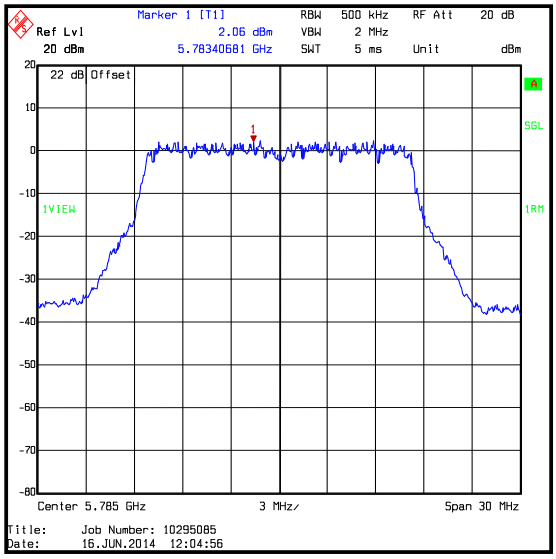
Transmitter Maximum Power Spectral Density (5.725-5.85 GHz band) (continued)

Results: 802.11a / 20 MHz / 64QAM / 54 Mbps

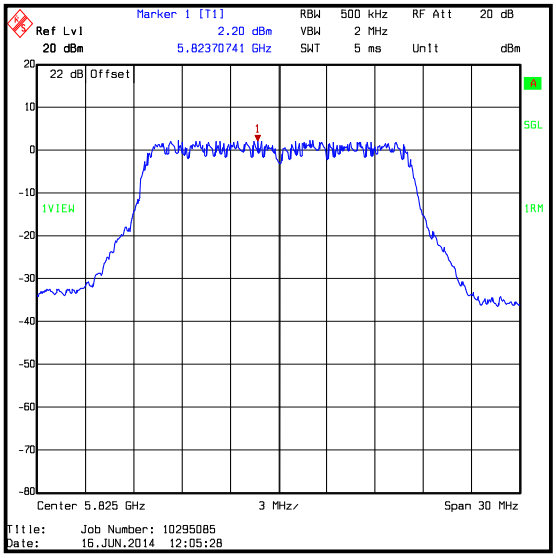
Channel	Frequency (MHz)	PPSD (dBm / 500 kHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm / 500 kHz)	Limit (dBm / 500 kHz)	Margin (dB)	Result
Bottom	5745	2.4	0.3	2.7	30.0	27.3	Complied
Middle	5785	2.1	0.3	2.4	30.0	27.6	Complied
Top	5825	2.2	0.3	2.5	30.0	27.5	Complied



Bottom Channel



Middle Channel

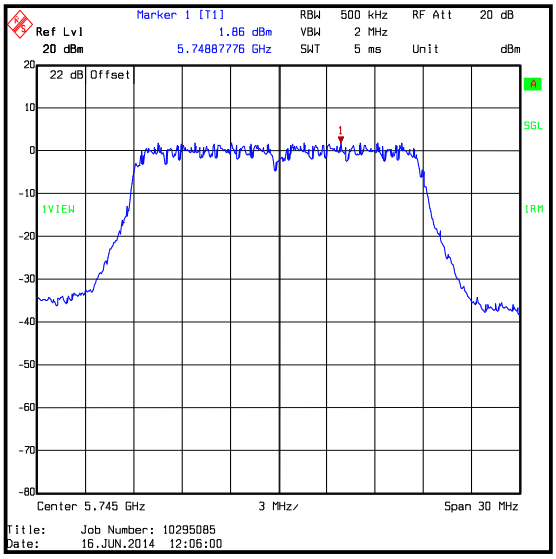


Top Channel

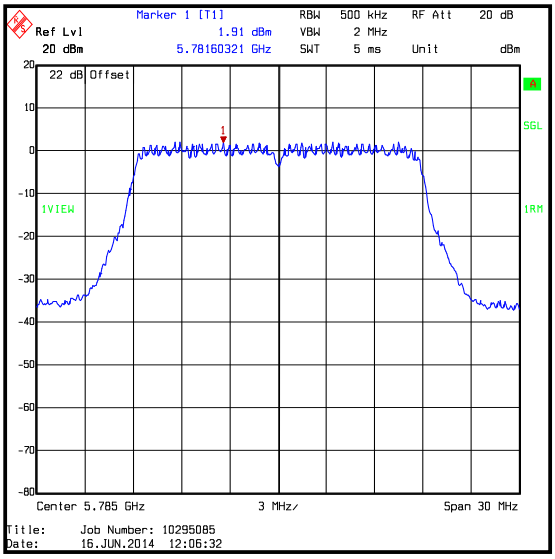
Transmitter Maximum Power Spectral Density (5.725-5.85 GHz band) (continued)

Results: 802.11n / 20 MHz / 64QAM / 58.5 Mbps / MCS6

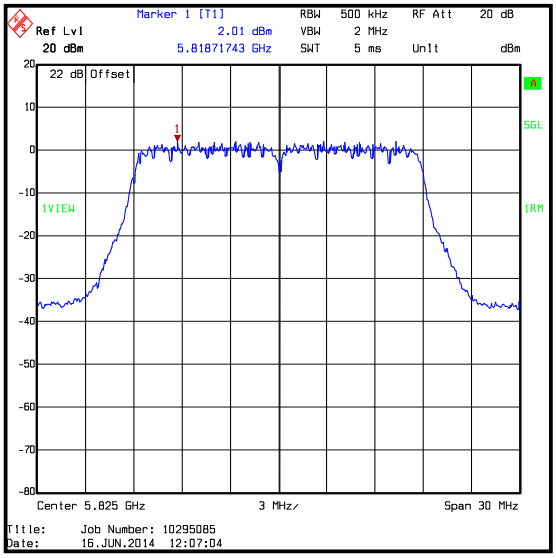
Channel	Frequency (MHz)	PPSD (dBm / 500 kHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm / 500 kHz)	Limit (dBm / 500 kHz)	Margin (dB)	Result
Bottom	5745	1.9	0.3	2.2	30.0	17.8	Complied
Middle	5785	1.9	0.3	2.2	30.0	17.8	Complied
Top	5825	2.0	0.3	2.3	30.0	17.7	Complied



Bottom Channel



Middle Channel

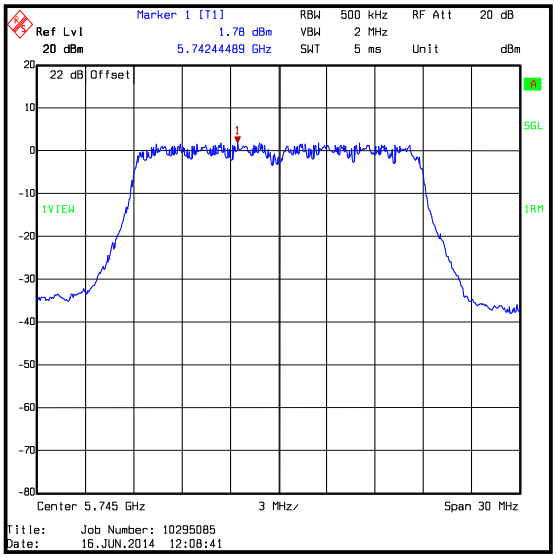


Top Channel

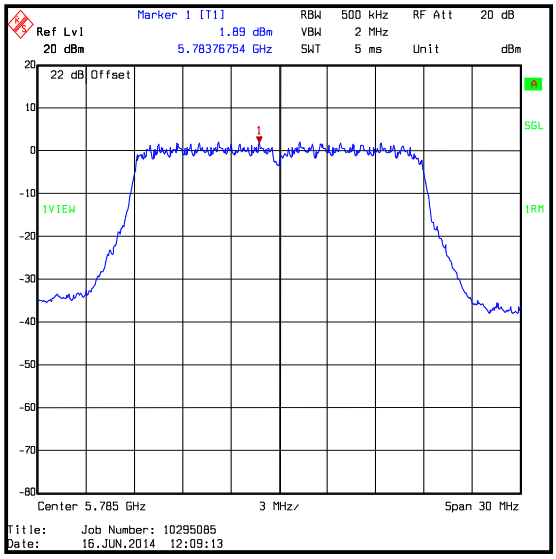
Transmitter Maximum Power Spectral Density (5.725-5.85 GHz band) (continued)

Results: 802.11ac / 20 MHz / 64QAM / 52 Mbps / MCS5

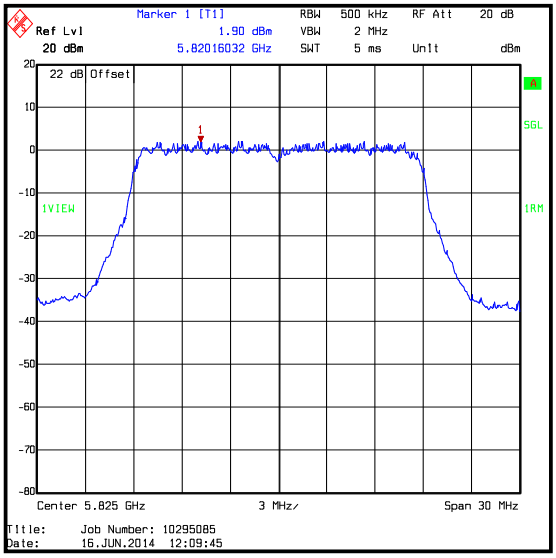
Channel	Frequency (MHz)	PPSD (dBm / 500 kHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm / 500 kHz)	Limit (dBm / 500 kHz)	Margin (dB)	Result
Bottom	5745	1.8	0.2	2.0	30.0	18.0	Complied
Middle	5785	1.9	0.2	2.1	30.0	17.9	Complied
Top	5825	1.9	0.2	2.1	30.0	17.9	Complied



Bottom Channel



Middle Channel

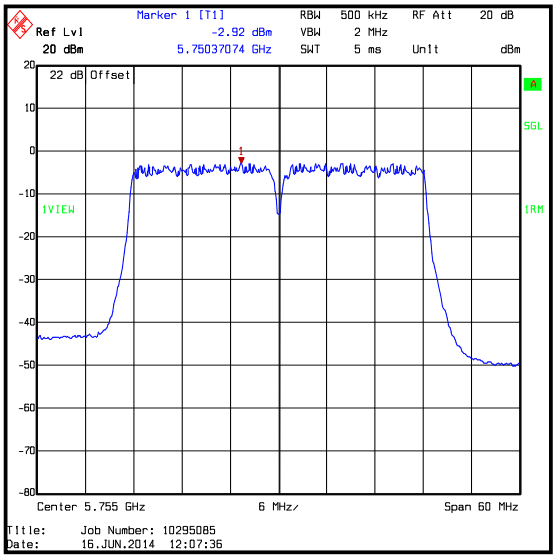


Top Channel

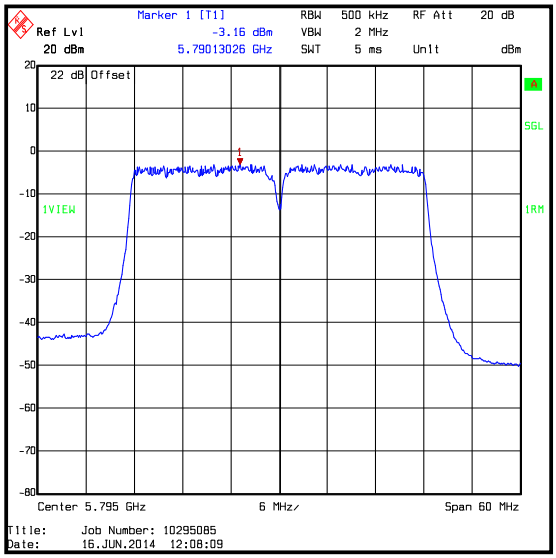
Transmitter Maximum Power Spectral Density (5.725-5.85 GHz band) (continued)

Results: 802.11n / 40 MHz / QPSK / 40.5 Mbps / MCS2

Channel	Frequency (MHz)	PPSD (dBm / 500 kHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm / 500 kHz)	Limit (dBm / 500 kHz)	Margin (dB)	Result
Bottom	5755	-2.9	0.4	-2.5	30.0	32.5	Complied
Top	5795	-3.2	0.4	-2.8	30.0	32.8	Complied



Bottom Channel

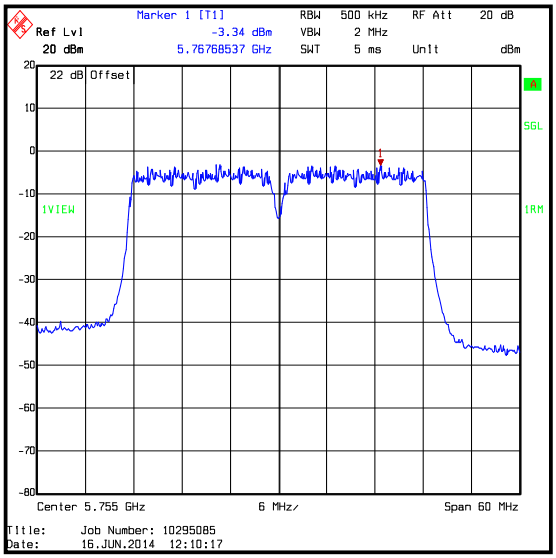


Top Channel

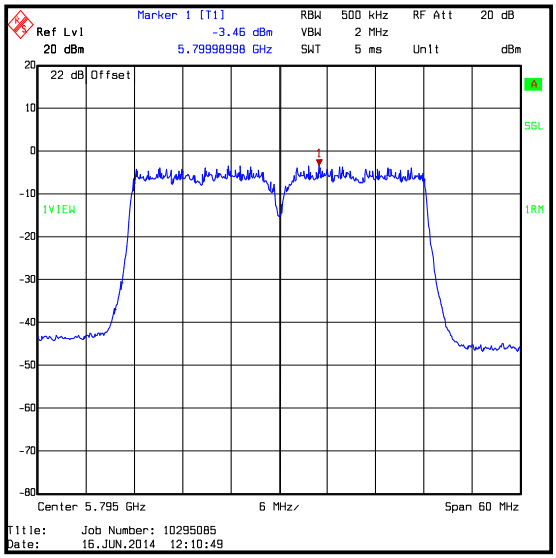
Transmitter Maximum Power Spectral Density (5.725-5.85 GHz band) (continued)

Results: 802.11ac / 40 MHz / 64QAM / 108 Mbps / MCS5

Channel	Frequency (MHz)	PPSD (dBm / 500 kHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm / 500 kHz)	Limit (dBm / 500 kHz)	Margin (dB)	Result
Bottom	5755	-3.3	0.4	-2.9	30.0	32.9	Complied
Top	5795	-3.5	0.4	-3.1	30.0	33.1	Complied



Bottom Channel

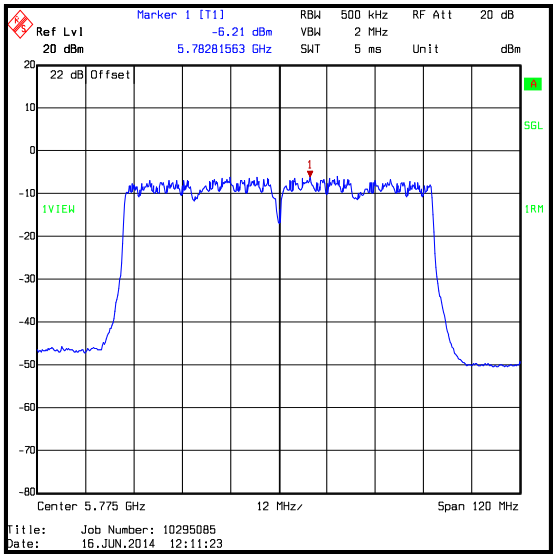


Top Channel

Transmitter Maximum Power Spectral Density (5.725-5.85 GHz band) (continued)

Results: 802.11ac / 80 MHz / QPSK / 87.8 Mbps / MCS2

Channel	Frequency (MHz)	PPSD (dBm / 500 kHz)	Duty cycle correction factor (dB)	Corrected PPSD (dBm / 500 kHz)	Limit (dBm / 500 kHz)	Margin (dB)	Result
Single	5775	-6.2	0.3	-5.9	30.0	35.9	Complied



Single Channel

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1657	Thermohygrometer	JM Handelspunkt	30.5015.13	Not stated	14 Mar 2015	12
M127	Spectrum Analyser	Rohde & Schwarz	FSEB 30	842 659/016	19 Aug 2014	12
A1998	Attenuator	Huber & Suhner	6820.17.B	07101	Calibrated before use	-
G0608	Signal Generator	Rohde & Schwarz	SMIQ 06B	838341/033	14 Feb 2015	12
M199	Power Meter	Rohde & Schwarz	NRVS	827023/075	08 Apr 2016	24
M1267	Power Sensor	Rohde & Schwarz	NRV-Z52	100155	23 Apr 2016	24
A1256	Power Supply Unit	Farnell	11E30/1B	000378	Calibrated before use	-
M1229	Multimeter	Fluke	179	87640015	24 Apr 2015	12

5.2.7. Transmitter Out of Band Radiated Emissions

Test Summary:

Test Engineer:	Georgios Vrezas	**Test Date:**	13 June 2014
Test Sample IMEI:	004402452705282		

FCC Reference:	Parts 15.407(b)(2),(6),(7) & 15.209(a)
Test Method Used:	As detailed in KDB 789033 II.G. & ANSI C63.10 Sections 6.3 and 6.5
Frequency Range:	9 kHz to 1000 MHz

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	30

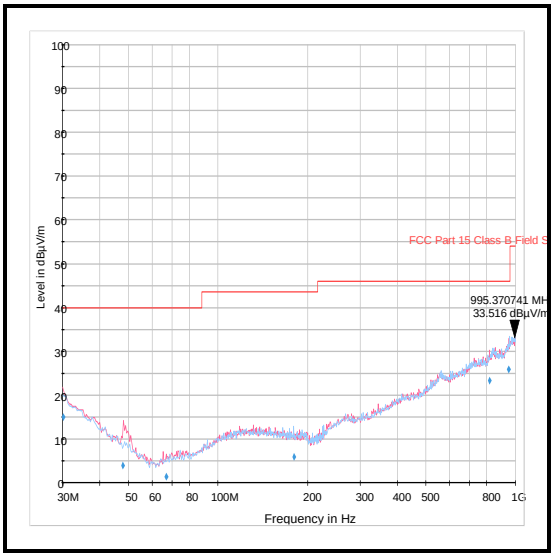
Note(s):

1. Measurements below 1 GHz were limited to the 5.25-5.35 GHz band, the EUT was transmitting with a data rate of 12 Mbps (802.11a) as it produced the highest conducted output power and was therefore deemed worst case.
2. Pre-scans with the EUT transmitting on the top channel were measured according to FCC Part 15.407(b)(2) which states for transmitters operating in the band 5.25 to 5.35 GHz: all emissions outside of the band 5.15-5.35 GHz band shall not exceed -27 dBm/MHz. Part(b)(6) states unwanted emissions below 1 GHz must comply with the general field strength limits set forth in 15.209. Part(b)(7) states the provisions of 15.205 apply, e.g. restricted bands of operation.
3. The final measured value, for the given emission in the field strength result tables, incorporates the calibrated antenna factor and cable loss.
4. The preliminary scans showed similar emission levels below 1 GHz, for each channel of operation. Therefore final radiated emissions measurements were performed with the EUT set to the top channel only.
5. In accordance with FCC part 15.33, pre-scans were performed from 9 kHz to 30 MHz. As there were no emissions observed within 20 dB of the limit, in accordance with 15.31(o), no pre-scans are included in this test report. The pre-scans are kept on file and available upon request.
6. All emissions shown on the pre-scan plots were found to be below the measurement system noise floor or ambient, therefore the highest peak noise floor reading of the measuring receiver was recorded in the table below.
7. Measurements below 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) 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.

Results: Top Channel / Field Strength

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
995.371	Horizontal	33.5	54.0	20.5	Complied

Transmitter Out of Band Radiated Emissions (5.25-5.35 GHz band operation) (continued)



Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1622	Thermohygrometer	JM Handelspunkt	30.5015.06	None stated	31 Dec 2014	12
K0001	5m RSE Chamber	Rainford EMC	N/A	N/A	26 Nov 2014	12
G0543	Amplifier	Sonoma	310N	230801	19 Aug 2014	3
M1273	Test Receiver	Rohde & Schwarz	ESIB 26	100275	15 Feb 2015	12
A490	Antenna	Chase	CBL6111A	1590	29 Apr 2015	12
A1834	Attenuator	Hewlett Packard	8491B	10444	15 Nov 2014	12

Transmitter Out of Band Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Test Summary:

Test Engineer:	Andrew Edwards	**Test Dates:**	16 June 2014 & 17 June 2014
Test Sample IMEI:	004402452705282		

FCC Reference:	Part 15.407(b)(1),(7) & 15.209(a)
Test Method Used:	As detailed in KDB 789033 II.G. & ANSI C63.10 Sections 6.3 and 6.6
Frequency Range:	1 GHz to 40 GHz

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	42

Note(s):

1. FCC Part 15.407(b)(1) states for transmitters operating in the band 5.15 to 5.25 GHz: all emissions outside of the band will not exceed -27 dBm/MHz. Part(b)(7) states the provisions of 15.205 apply e.g. restricted bands of operation.
2. Pre-scans were performed with the EUT transmitting on top channel in the 5.25 to 5.35 GHz band. An inquiry was made to the FCC and the response was pre-scans could be performed in the band with the highest conducted output power and all final measurements should be performed on any emissions seen in each band.
3. The final measured value, for the given emission in the field strength result tables, incorporates the calibrated antenna factor and cable loss.
4. Appropriate RF filters and attenuators were used during pre-scans and final measurements. Insertion losses were entered on the spectrum analyser as RF levels offsets.
5. In accordance with KDB 789033 Section II.G.1.c) if the peak measurement is below the average limit, it is not necessary to perform a separate average measurement.
6. All other emissions shown on the pre-scan plots were investigated and found to be ambient or >20 dB below the applicable limit or below the measurement system noise floor.
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. Final measurements above 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) 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.

Transmitter Out of Band Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: Bottom Channel / EIRP

Frequency (MHz)	Antenna Polarity	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5397.644	Horizontal	-41.6	-27.0	14.6	Complied
15543.526	Horizontal	-43.8	-27.0	16.8	Complied

Results: Bottom Channel / Field Strength

Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
5397.644	Horizontal	53.6	54.0	0.4	Complied
15543.526	Horizontal	51.4	54.0	2.6	Complied

Results: Middle Channel / EIRP

Frequency (MHz)	Antenna Polarity	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5410.385	Horizontal	-41.9	-27.0	14.9	Complied
15603.846	Horizontal	-43.2	-27.0	16.2	Complied

Results: Middle Channel / Field Strength

Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
5410.385	Horizontal	53.3	54.0	0.7	Complied
15603.846	Horizontal	52.0	54.0	2.0	Complied

Results: Top Channel / EIRP

Frequency (MHz)	Antenna Polarity	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5454.696	Horizontal	-41.4	-27.0	14.4	Complied
15714.391	Horizontal	-43.4	-27.0	16.4	Complied

Results: Top Channel / Field Strength

Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
5454.696	Horizontal	53.8	54.0	0.2	Complied
15714.391	Horizontal	51.8	54.0	2.2	Complied

Transmitter Out of Band Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Test Summary:

Test Engineer:	Andrew Edwards	**Test Dates:**	16 June 2014 & 17 June 2014
Test Sample IMEI:	004402452705282		

FCC Reference:	Part 15.407(b)(2),(7) & 15.209(a)
Test Method Used:	As detailed in KDB 789033 II.G. & ANSI C63.10 Sections 6.3 and 6.6
Frequency Range:	1 GHz to 40 GHz

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	41

Note(s):

1. FCC Part 15.407(b)(2) states for transmitters operating in the band 5.25 to 5.35 GHz: all emissions outside of the 5.15-5.35 GHz band will not exceed -27 dBm/MHz. Part(b)(7) states the provisions of 15.205 apply e.g. restricted bands of operation.
2. Pre-scans were performed with the EUT transmitting on the top channel in this band. An inquiry was made to the FCC and the response was pre-scans could be performed in the band with the highest conducted output power (802.11a / 12 Mbps) and all final measurements should be performed on any emission seen for each band.
3. The final measured value, for the given emission in the field strength result tables, incorporates the calibrated antenna factor and cable loss.
4. Appropriate RF filters and attenuators were used during pre-scans and final measurements. Insertion losses were entered on the spectrum analyser as RF levels offsets.
5. The emission shown on the 4 GHz to 6 GHz plot is the EUT fundamental.
6. In accordance with KDB 789033 Section II.G.1.c) if the peak measurement is below the average limit, it is not necessary to perform a separate average measurement.
7. All other emissions shown on the pre-scan plot were investigated and found to be ambient or >20 dB below the applicable limit or below the measurement system noise floor.
8. Pre-scan plots 4 to 6 GHz and the two restricted band plots (4.5 to 5.15 and 5.35 to 5.46 GHz) were performed with 4000 Sweep points and 103 sweep points in accordance with KDB 789033 II.G.6.c)(iii). All other meausrments were performed with the instruments default setting of 625 sweep points.
9. Measurements were performed across the two restricted bands closest to the bands of operation with the EUT transmitting on the top channel in the 5.25 to 5.35 GHz band. Plots are included in this section of the test report. Peak and average measurements were made.
10. 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. Final measurements above 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) 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.

Transmitter Out of Band Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: Bottom Channel / EIRP

Frequency (MHz)	Antenna Polarity	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5483.942	Horizontal	-41.5	-27.0	14.5	Complied
15781.763	Horizontal	-42.7	-27.0	15.7	Complied

Results: Bottom Channel / Field Strength

Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
15781.763	Horizontal	52.5	54.0	1.5	Complied

Results: Middle Channel / EIRP

Frequency (MHz)	Antenna Polarity	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5505.016	Horizontal	-41.1	-27.0	14.1	Complied
15837.917	Horizontal	-42.3	-27.0	15.3	Complied

Results: Middle Channel / Field Strength

Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
15837.917	Horizontal	52.9	54.0	1.1	Complied

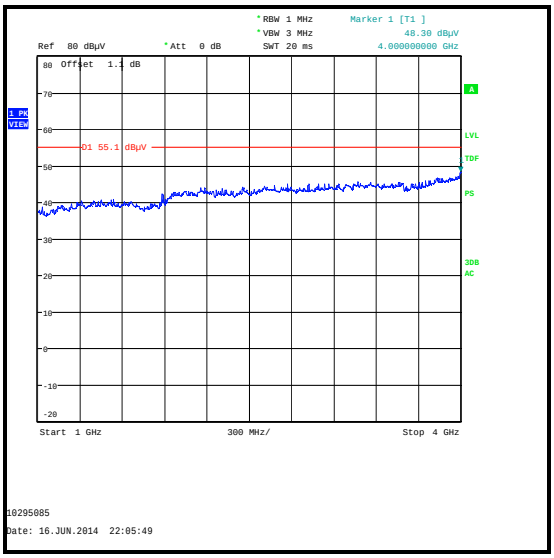
Results: Top Channel / EIRP

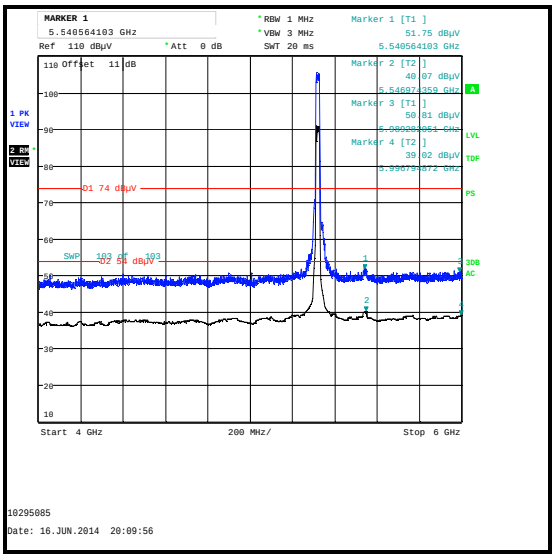
Frequency (MHz)	Antenna Polarity	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5546.442	Horizontal	-40.1	-27.0	13.1	Complied
15958.878	Horizontal	-42.4	-27.0	15.4	Complied

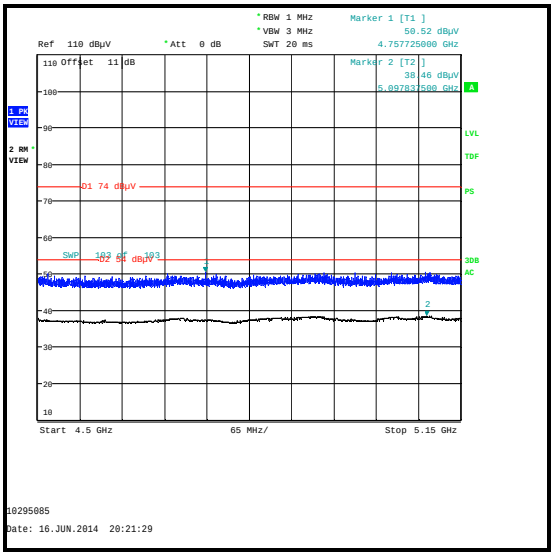
Results: Top Channel / Field Strength

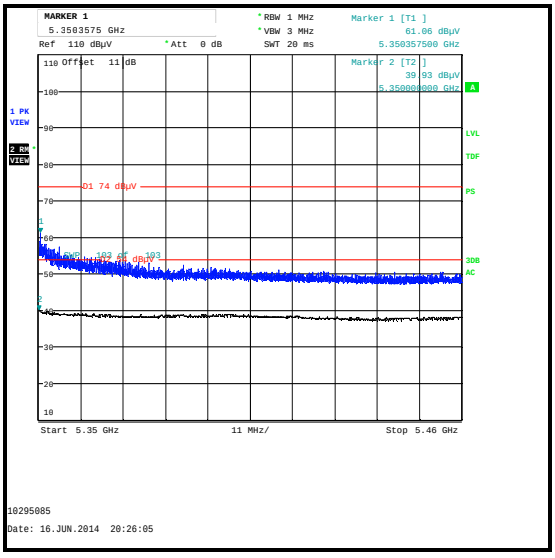
Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
10640.577	Horizontal	43.9	54.0	10.1	Complied
15958.878	Horizontal	52.8	54.0	1.2	Complied

Transmitter Out of Band Radiated Emissions (5.25-5.35 GHz band operation) (continued)





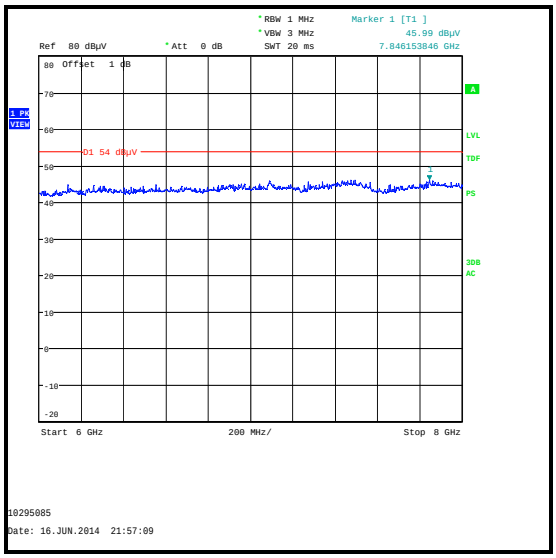


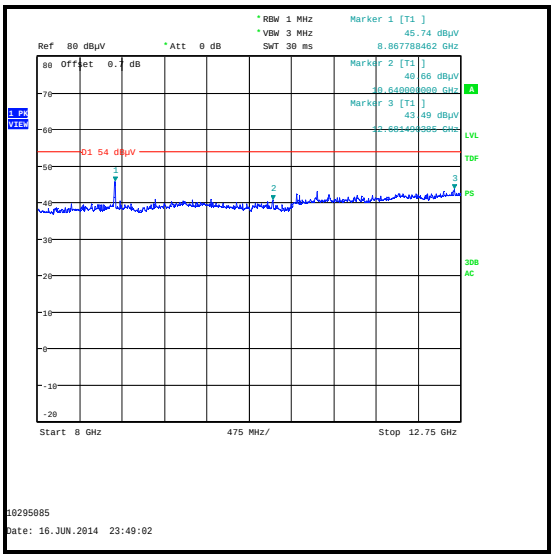


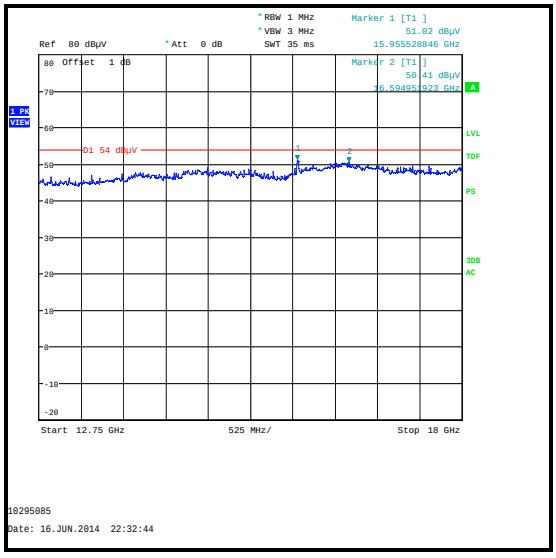
Restricted Band 4.5 GHz to 5.15 GHz

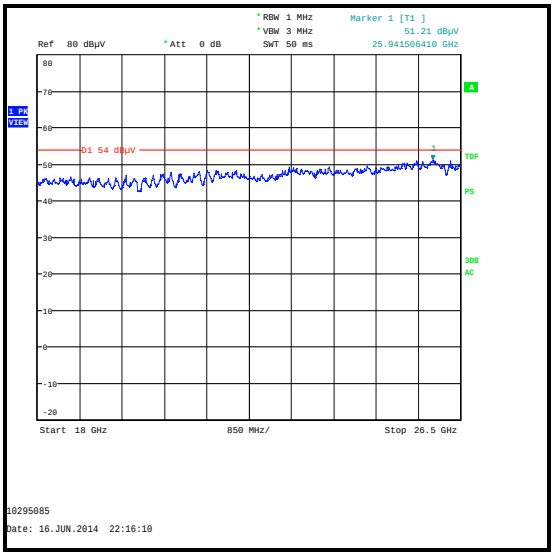
Restricted Band 5.35 GHz to 5.46 GHz

Transmitter Out of Band Radiated Emissions (5.25-5.35 GHz band operation) (continued)

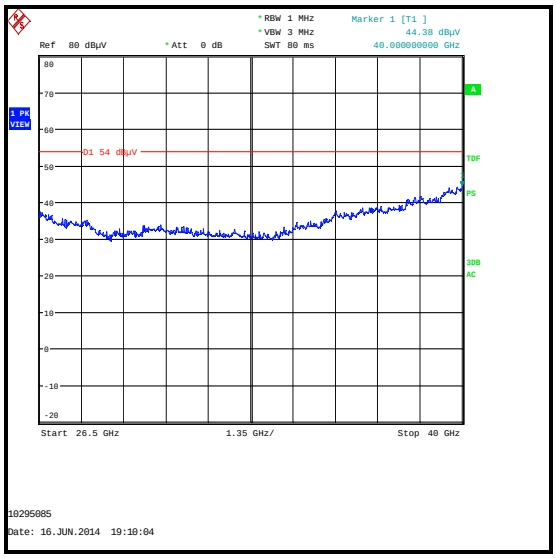








Transmitter Out of Band Radiated Emissions (5.25-5.35 GHz band operation) (continued)



Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Transmitter Out of Band Radiated Emissions (5.47-5.725 GHz band operation) (continued)

Test Summary:

Test Engineer:	Andrew Edwards	**Test Dates:**	16 June 2014 & 17 June 2014
Test Sample IMEI:	004402452705282		

FCC Reference:	Part 15.407(b)(3),(7) & 15.209(a)
Test Method Used:	As detailed in KDB 789033 II.G. & ANSI C63.10 Sections 6.3 and 6.6
Frequency Range:	1 GHz to 40 GHz

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	41

Note(s):

1. FCC Part 15.407(b)(3) states for transmitters operating in the band 5.47 to 5.725 GHz: all emissions outside of the band will not exceed -27 dBm/MHz. Part(b)(7) states the provisions of 15.205 apply e.g. restricted bands of operation.
2. Pre-scans were performed with the EUT transmitting on top channel in the 5.25 to 5.35 GHz band. An inquiry was made to the FCC and the response was pre-scans could be performed in the band with the highest conducted output power and all final measurements should be performed on any emissions seen in each band.
3. The final measured value, for the given emission in the field strength result tables, incorporates the calibrated antenna factor and cable loss.
4. Appropriate RF filters and attenuators were used during pre-scans and final measurements. Insertion losses were entered on the spectrum analyser as RF levels offsets.
5. In accordance with KDB 789033 Section II.G.1.c) if the peak measurement is below the average limit, it is not necessary to perform a separate average measurement.
6. All other emissions shown on the pre-scan plot were investigated and found to be ambient or >20 dB below the applicable limit or below the measurement system noise floor.
7. The third harmonic can be seen on the pre-scan plot 12.75 to 18 GHz when the EUT is transmitting on top channel in the 5.25 to 5.35 band. This harmonic was investigated for this band and found to be below the measurement noise floor on bottom, middle and top channels.
8. 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. Final measurements above 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) 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.

Transmitter Out of Band Radiated Emissions (5.47-5.725 GHz band operation) (continued)

Results: Bottom Channel / EIRP

Frequency (MHz)	Antenna Polarity	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5721.827	Horizontal	-41.3	-27.0	14.3	Complied
11002.596	Horizontal	-47.9	-27.0	20.9	Complied

Results: Bottom Channel / Field Strength

Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
11002.596	Horizontal	47.3	54.0	6.7	Complied

Results: Middle Channel / EIRP

Frequency (MHz)	Antenna Polarity	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5820.064	Horizontal	-42.2	-27.0	15.2	Complied
11159.872	Horizontal	-45.5	-27.0	18.5	Complied

Results: Middle Channel / Field Strength

Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
11159.872	Horizontal	49.7	54.0	4.3	Complied

Results: Top Channel / EIRP

Frequency (MHz)	Antenna Polarity	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5940.256	Horizontal	-42.8	-27.0	15.8	Complied
11401.250	Horizontal	-48.7	-27.0	21.7	Complied

Results: Top Channel / Field Strength

Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
11401.250	Horizontal	46.5	54.0	7.5	Complied

Transmitter Out of Band Radiated Emissions (5.725-5.85 GHz band operation) (continued)

Test Summary:

Test Engineer:	Andrew Edwards	**Test Dates:**	16 June 2014 & 17 June 2014
Test Sample IMEI:	004402452705282		

FCC Reference:	Part 15.407(b)(4),(7) & 15.209(a)
Test Method Used:	As detailed in KDB 789033 II.G. & ANSI C63.10 Sections 6.3 and 6.6
Frequency Range:	1 GHz to 40 GHz

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	41

Note(s):

1. FCC Part 15.407(b)(4) states for transmitters operating in the band 5.725 to 5.85 GHz: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge will not exceed -27 dBm/MHz. Part(b)(7) states the provisions of 15.205 apply e.g. restricted bands of operation.
2. Pre-scans were performed with the EUT transmitting on top channel in 5.25 to 5.35 GHz band. An inquiry was made to the FCC and the response was pre-scans could be performed in the band with the highest conducted output power and all final measurements should be performed on any emissions seen in each band.
3. The final measured value, for the given emission in the field strength result tables, incorporates the calibrated antenna factor and cable loss.
4. Appropriate RF filters and attenuators were used during pre-scans and final measurements. Insertion losses were entered on the spectrum analyser as RF levels offsets.
5. In accordance with KDB 789033 Section II.G.1.c) if the peak measurement is below the average limit, it is not necessary to perform a separate average measurement.
6. All other emissions shown on the pre-scan plot were investigated and found to be ambient or >20 dB below the applicable limit or below the measurement system noise floor.
7. The emission on the 4 to 6 GHz pre-scan at approximately 5464 MHz was investigated on bottom, middle and top channels for this band. No emissions were observed for middle and top channels.
8. The emission on the 8 to 12.75 GHz pre-scan at approximately 8636 MHz was investigated on bottom, middle and top channels for this band. No emissions were observed for all three channels.
9. The third harmonic can be seen on the pre-scan plot 12.75 to 18 GHz when the EUT is transmitting on top channel in the 5.25 to 5.35 band. This harmonic was investigated for this band and found to be below the measurement noise floor on bottom, middle and top channels.
10. 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. Final measurements above 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) 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.

Transmitter Out of Band Radiated Emissions (5.725-5.85 GHz band operation) (continued)

Results: Bottom Channel / EIRP

Frequency (MHz)	Antenna Polarity	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5996.234	Horizontal	-42.8	-27.0	15.8	Complied

Results: Bottom Channel / Field Strength

Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
11489.135	Horizontal	45.5	54.0	8.5	Complied

Results: Middle Channel / Field Strength

Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
11569.715	Horizontal	45.0	54.0	9.0	Complied

Results: Top Channel / Field Strength

Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
11646.442	Horizontal	44.1	54.0	9.9	Complied

Transmitter Out of Band Radiated Emissions (5.725-5.85 GHz band operation) (continued)

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1656	Thermohygrometer	JM Handelspunkt	30.5015.13	None stated	14 Mar 2015	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	14 Nov 2014	12
M1622	Thermohygrometer	JM Handelspunkt	30.5015.06	None stated	31 Dec 2014	12
G0543	Amplifier	Sonoma	310N	230801	19 Aug 2014	3
M1273	Test Receiver	Rohde & Schwarz	ESIB 26	100275	15 Feb 2015	12
A490	Antenna	Chase	CBL6111A	1590	29 Apr 2015	12
A1834	Attenuator	Hewlett Packard	8491B	10444	15 Nov 2014	12
K0001	5m RSE Chamber	Rainford EMC	N/A	N/A	26 Nov 2014	12
M1874	Test Receiver	Rohde & Schwarz	ESU26	100553	13 May 2015	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	18 May 2015	12
A1818	Antenna	EMCO	3115	00075692	14 Nov 2014	12
A253	Antenna	Flann Microwave	12240-20	128	14 Nov 2014	12
A254	Antenna	Flann Microwave	14240-20	139	14 Nov 2014	12
A255	Antenna	Flann Microwave	16240-20	519	14 Nov 2014	12
A256	Antenna	Flann Microwave	18240-20	400	14 Nov 2014	12
A436	Antenna	Flann Microwave	20240-20	330	14 Nov 2014	12
A203	Antenna	Flann Microwave	22240-20	343	19 May 2016	36
A1396	Attenuator	Huber & Suhner	6810.17.B	757987	02 May 2015	12
A1980	High Pass Filter	AtlanTecRF	AFH-06000	09110900303	12 Apr 2015	12
A2133	Low Pass Filter	AtlanTecRF	AFL-04000	JFB1006-002	25 Apr 2015	12
A2176	High Pass Filter	AtlanTecRF	AFH-07000	800980	12 Apr 2015	12
A1785	Pre Amplifier	Farran Technology	FLNA-28-30	FTL 6483	13 Jan 2015	12
M1630	Test Receiver	Rohde & Schwarz	ESU40	100233	13 Mar 2015	12
M1251	Multimeter	Fluke	175	89170179	19 May 2015	12
S0523	DC Power Supply	Tti	PL320	224235	Calibrated before use	-

5.2.8. Transmitter Band Edge Radiated Emissions

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	18 June 2014
Test Sample IMEI:	004402452705282		

FCC Reference:	Parts 15.407(b)(1),(7), 15.205 & 15.209(a)
Test Method Used:	ANSI C63.10 Section 6.9.2 & KDB 789033 II.G.

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	40

Note(s):

1. An Inquiry was made to the FCC and the response confirmed band edge measurements need only be performed in the EUT modes that produce the highest power and the widest bandwidths. The modes that produced the highest power and widest bandwidth were:
    - 802.11a – QPSK / 12 Mbps.
    - 802.11n HT20 – BPSK / 6.5 Mbps / MCS0.
    - 802.11n HT40 – BPSK / 13.5 Mbps / MCS0.
    - 802.11ac VHT20 – BPSK / 6.5 Mbps / MCS0.
    - 802.11ac VHT40 – QPSK / 27 Mbps / MCS1.
    - 802.11ac VHT80 – QPSK / 58.5 Mbps / MCS1.
2. Lower band edge measurements were performed with the EUT transmitting on the bottom channel. Upper band edge measurements were performed with the EUT transmitting on the top channel.
3. For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. However, there are restricted bands of operation below the lower band edge at 4.5-5.15 GHz and also above the upper band edge at 5.35-5.46 GHz therefore the provisions of FCC Part 15.205 apply.
4. Field strength measurements using peak and average detectors were performed in the restricted bands below 5.15 GHz and above 5.35 GHz. Field strength and EIRP results were found to be compliant with the restricted band limits and Part 15.407 out-of-band limits.
5. In accordance with KDB 789033 Section II.G.1.c) if the peak measurement is below the average limit, it is not necessary to perform a separate average measurement.
6. In accordance with KDB 789033 Section II.G.6.c) Method AD (vi), the average measurements were performed using an increased number of sweeps as calculated below:
    - 802.11a / 12 Mbps – 103 sweeps
    - 802.11n HT20 / 6.5 Mbps / MCS0 – 100 sweeps
    - 802.11n HT40 / 13.5 Mbps / MCS0 – 100 sweeps
    - 802.11ac VHT20 / 6.5 Mbps / MCS0 – 100 sweeps
    - 802.11ac VHT40 / 27 Mbps / MCS1 – 104 sweeps
    - 802.11ac VHT80 / 58.5 Mbps / MCS1 – 107 sweeps
7. In accordance with KDB 789033 Section II.G.6.c) Method AD (vii), for average measurements, data rates where the EUT was transmitting <98% duty cycle, the duty cycle correction factor calculated in section 5.2.4 was added to the measured result.

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11a / 20 MHz / QPSK / 12 Mbps / Peak

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5149.760	56.7	74.0	17.3	Complied
5150	56.0	74.0	18.0	Complied

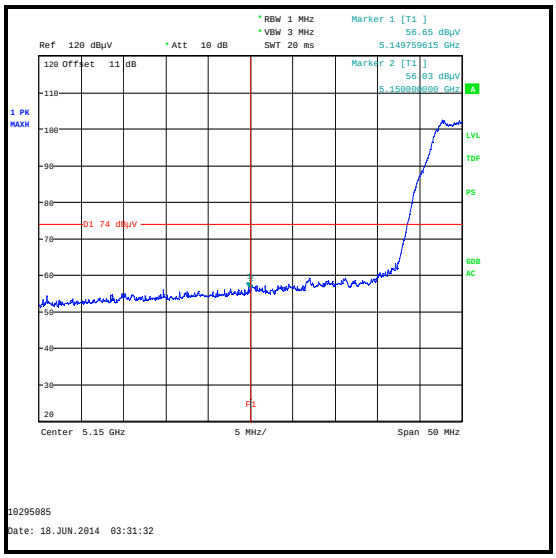
Frequency (MHz)	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
5350	52.1	54.0	1.9	Complied
5398.654	52.7	54.0	1.3	Complied

Results: 802.11a / 20 MHz / QPSK / 12 Mbps / Average

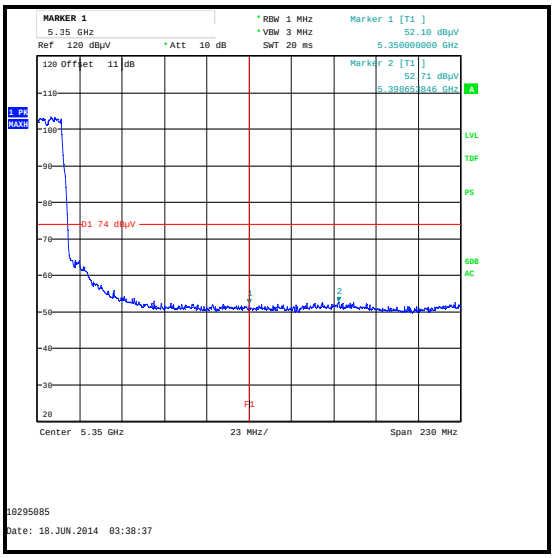
Frequency (MHz)	Level (dBµV/m)	Duty Cycle correction (dB)	Corrected Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5149.599	43.2	0.1	43.3	54.0	10.7	Complied
5150	43.0	0.1	43.1	54.0	10.9	Complied

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

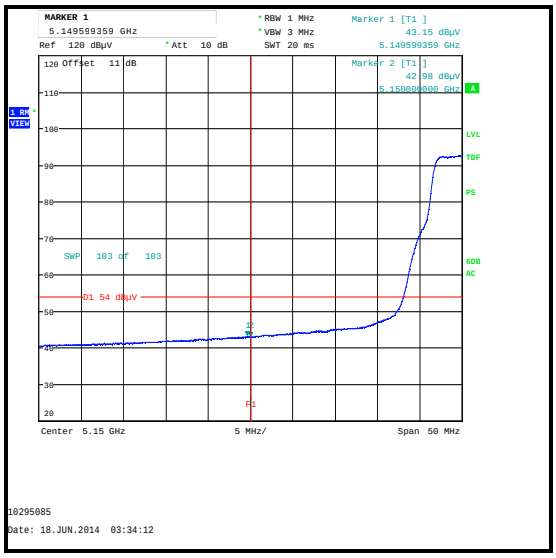
Results: 802.11a / 20 MHz / QPSK / 12 Mbps



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



Lower Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11n / 20 MHz / BPSK / 6.5 Mbps / MCS0 / Peak

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5149.439	56.6	74.0	17.4	Complied
5150	55.9	74.0	18.1	Complied

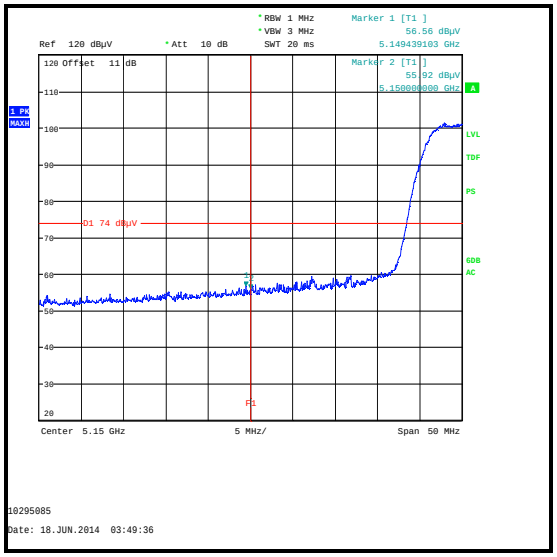
Frequency (MHz)	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
5350	50.7	54.0	3.3	Complied
5400.128	52.9	54.0	1.1	Complied

Results: 802.11n / 20 MHz / BPSK / 6.5 Mbps / MCS0 / Average

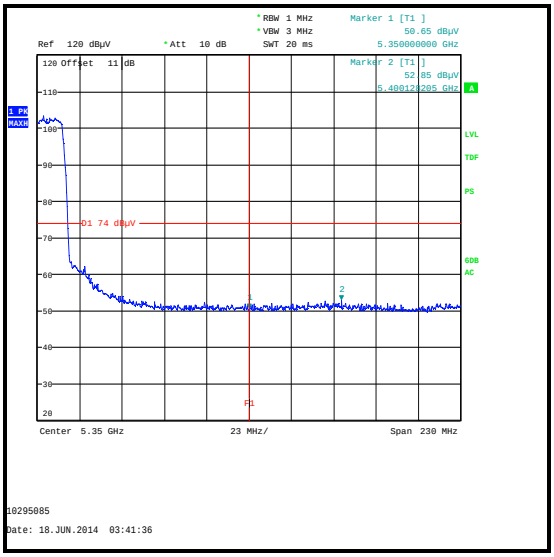
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	42.7	54.0	11.3	Complied

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

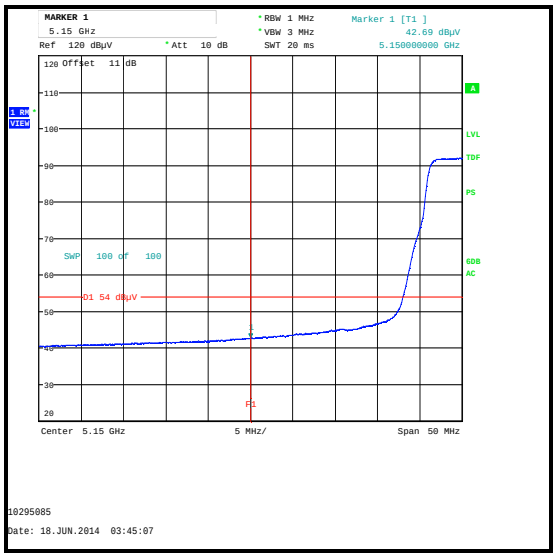
Results: 802.11n / 20 MHz / BPSK / 6.5 Mbps / MCS0



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



Lower Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11ac / 20 MHz / BPSK / 6.5 Mbps / MCS0 / Peak

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5147.356	56.0	74.0	18.0	Complied
5150	54.3	74.0	19.7	Complied

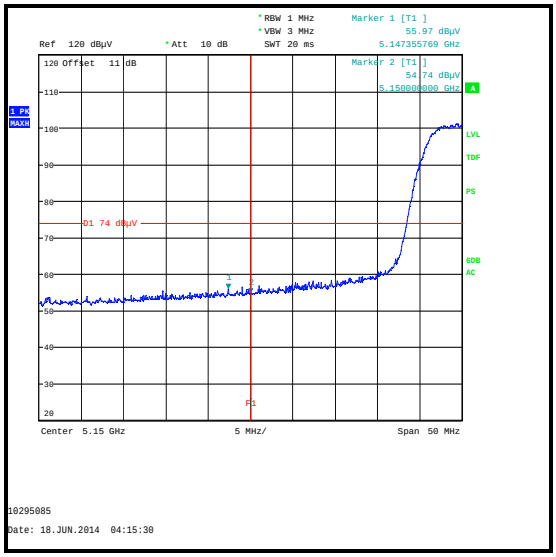
Frequency (MHz)	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
5350	51.1	54.0	2.9	Complied
5400.497	52.8	54.0	1.2	Complied

Results: 802.11ac / 20 MHz / BPSK / 6.5 Mbps / MCS0 / Average

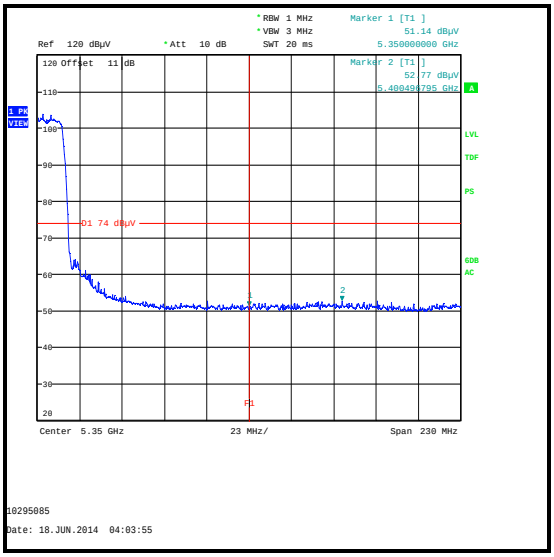
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5149.760	42.5	54.0	11.5	Complied
5150	42.3	54.0	11.7	Complied

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

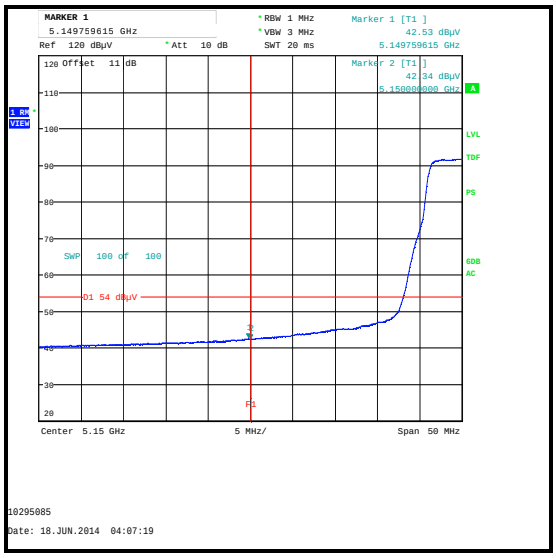
Results: 802.11ac / 20 MHz / BPSK / 6.5 Mbps / MCS0



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



Lower Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11n / 40 MHz / BPSK / 13.5 Mbps / MCS0 / Peak

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5149.119	60.4	74.0	13.6	Complied
5150	58.8	74.0	15.2	Complied

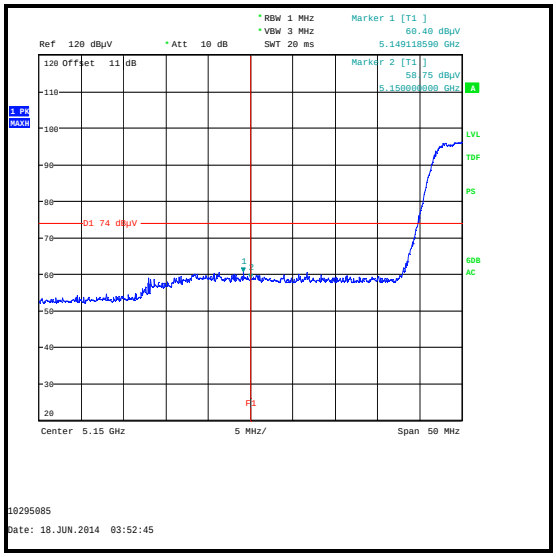
Frequency (MHz)	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
5350	50.7	54.0	3.3	Complied
5407.131	52.7	54.0	1.3	Complied

Results: 802.11n / 40 MHz / BPSK / 13.5 Mbps / MCS0 / Average

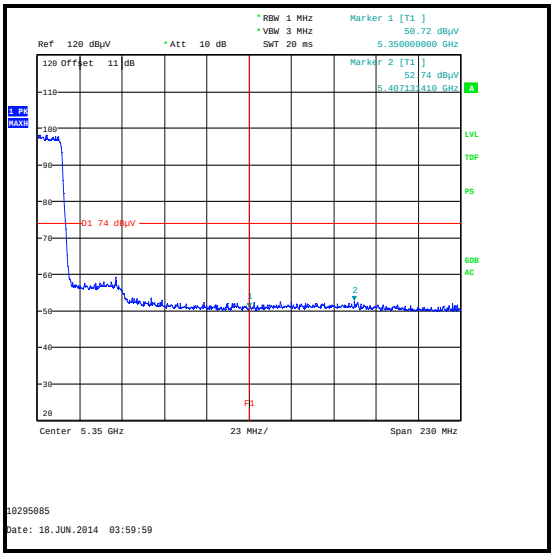
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	46.3	54.0	7.7	Complied

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

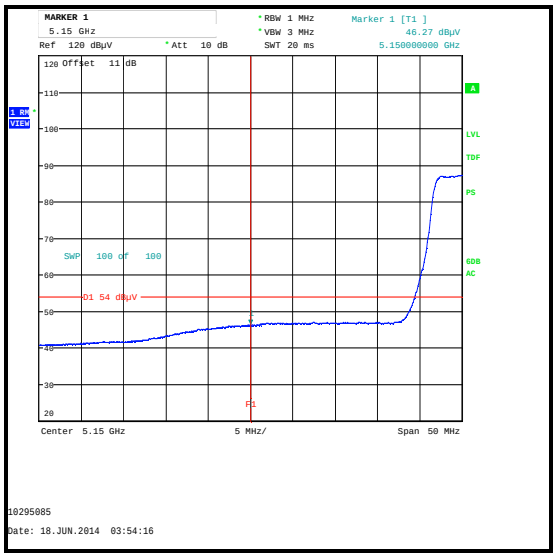
Results: 802.11n / 40 MHz / BPSK / 13.5 Mbps / MCS0



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



Lower Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11ac / 40 MHz / QPSK / 27 Mbps / MCS1 / Peak

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5147.436	60.5	74.0	13.5	Complied
5150	59.1	74.0	14.9	Complied

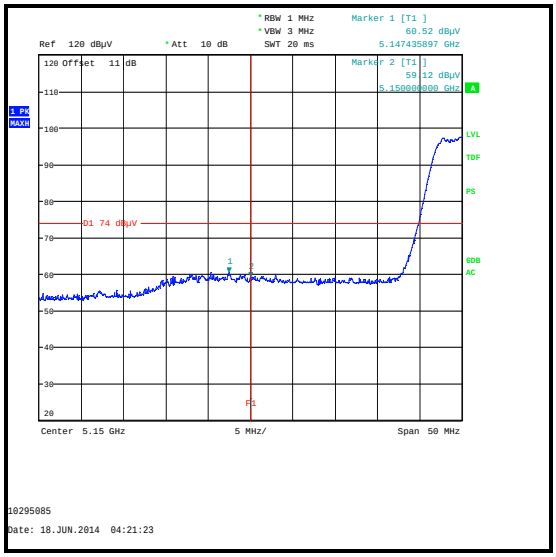
Frequency (MHz)	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
5350	51.0	54.0	3.0	Complied
5411.923	53.1	54.0	0.9	Complied

Results: 802.11ac / 40 MHz / QPSK / 27 Mbps / MCS1 / Average

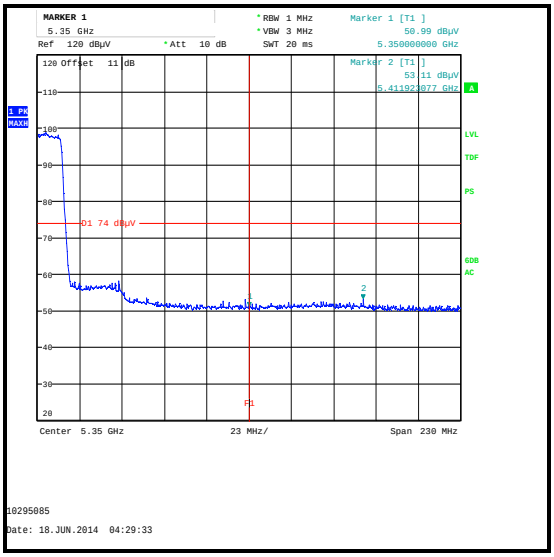
Frequency (MHz)	Level (dBµV/m)	Duty cycle correction (dB)	Corrected Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5150	46.5	0.4	46.9	54.0	7.1	Complied

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11ac / 40 MHz / QPSK / 27 Mbps / MCS1



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement

Lower Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

Results: 802.11ac / 80 MHz / QPSK / 58.5 Mbps / MCS1 / Peak

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5141.426	61.2	74.0	12.8	Complied
5150	59.5	74.0	14.5	Complied

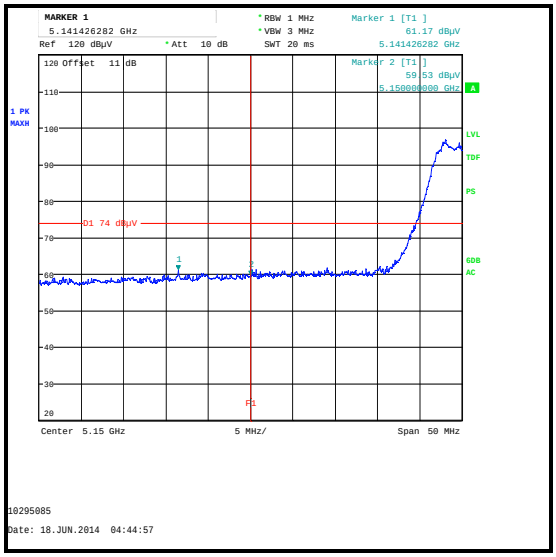
Frequency (MHz)	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
5350	51.5	54.0	2.5	Complied
5380.962	52.4	54.0	1.6	Complied

Results: 802.11ac / 80 MHz / QPSK / 58.5 Mbps / MCS1 / Average

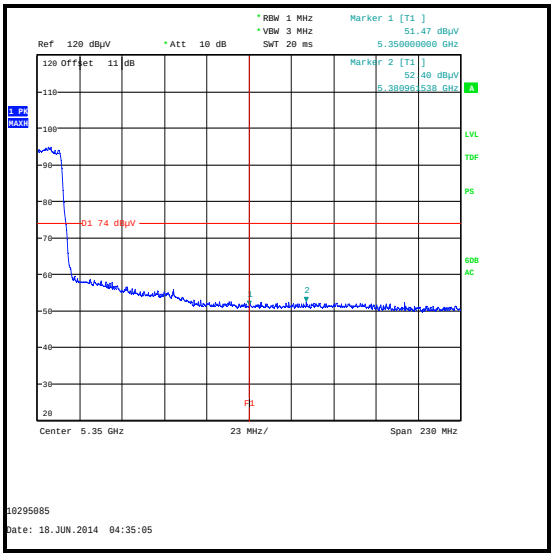
Frequency (MHz)	Level (dBµV/m)	Duty cycle correction (dB)	Corrected Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5149.760	46.9	0.3	47.2	54.0	6.8	Complied
5150	46.7	0.3	47.0	54.0	7.0	Complied

Transmitter Band Edge Radiated Emissions (5.15-5.25 GHz band operation) (continued)

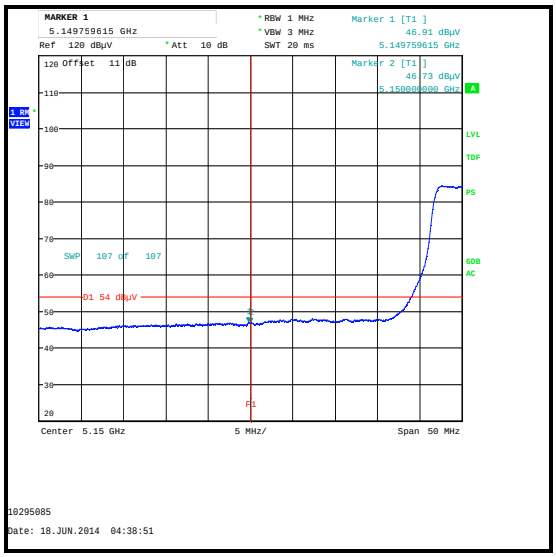
Results: 802.11ac / 80 MHz / QPSK / 58.5 Mbps / MCS1



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



Lower Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band)

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	18 June 2014
Test Sample IMEI:	004402452705282		

FCC Reference:	Parts 15.407(b)(2),(7), 15.205 & 15.209(a)
Test Method Used:	ANSI C63.10 Section 6.9.2 & KDB 789033 II.G.

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	40

Note(s):

1. An Inquiry was made to the FCC and the response confirmed band edge measurements need only be performed in the EUT modes that produce the highest power and the widest bandwidths. The modes that produced the highest power and widest bandwidth were:
    - 802.11a – QPSK / 12 Mbps.
    - 802.11n HT20 – BPSK / 6.5 Mbps / MCS0.
    - 802.11n HT40 – BPSK / 13.5 Mbps / MCS0.
    - 802.11ac VHT20 – BPSK / 6.5 Mbps / MCS0.
    - 802.11ac VHT40 – QPSK / 27 Mbps / MCS1.
    - 802.11ac VHT80 – QPSK / 58.5 Mbps / MCS1.
2. Lower band edge measurements were performed with the EUT transmitting on the bottom channel. Upper band edge measurements were performed with the EUT transmitting on the top channel.
3. For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. However, there are restricted bands of operation below the lower band edge at 4.5-5.15 GHz and also above the upper band edge at 5.35-5.46 GHz therefore the provisions of FCC Part 15.205 apply. Tests were performed in these restricted bands of operation with the EUT transmitting on the bottom and top channels within 5.25-5.35 GHz band, the results are included in the transmitter 5.25-5.35 GHz band radiated spurious emissions section of this test report.
4. Field strength measurements using peak and average detectors were performed in the restricted bands below 5.15 GHz and above 5.35 GHz. Field strength and EIRP results were found to be compliant with the restricted band limits and Part 15.407 out-of-band limits.
5. In accordance with KDB 789033 Section II.G.1.c) if the peak measurement is below the average limit, it is not necessary to perform a separate average measurement.
6. In accordance with KDB 789033 Section II.G.6.c) Method AD (vi), the average measurements were performed using an increased number of sweeps as calculated below:
    - 802.11a / 12 Mbps – 103 sweeps
    - 802.11n HT20 / 6.5 Mbps / MCS0 – 100 sweeps
    - 802.11n HT40 / 13.5 Mbps / MCS0 – 100 sweeps
    - 802.11ac VHT20 / 6.5 Mbps / MCS0 – 100 sweeps
    - 802.11ac VHT40 / 27 Mbps / MCS1 – 104 sweeps
    - 802.11ac VHT80 / 58.5 Mbps / MCS1 – 107 sweeps
7. In accordance with KDB 789033 Section II.G.6.c) Method AD (vii), for average measurements, data rates where the EUT was transmitting <98% duty cycle, the duty cycle correction factor calculated in section 5.2.4 was added to the measured result.

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11a / 20 MHz / QPSK / 12 Mbps / Peak

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5350	58.0	74.0	16.0	Complied
5350.080	58.5	74.0	15.5	Complied

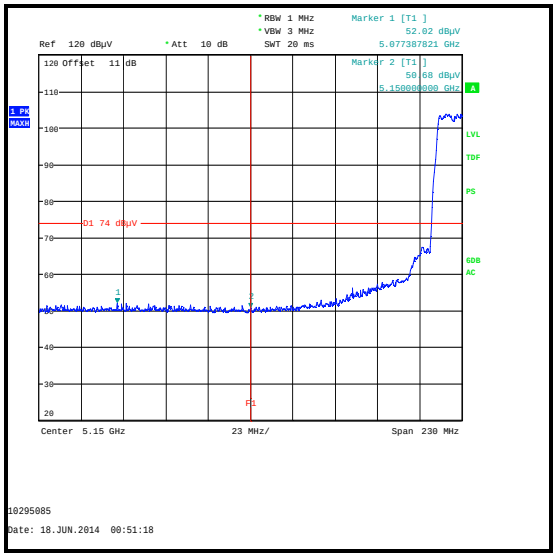
Frequency (MHz)	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
5077.388	52.0	54.0	2.0	Complied
5150	50.7	54.0	3.3	Complied

Results: 802.11a / 20 MHz / QPSK / 12 Mbps / Average

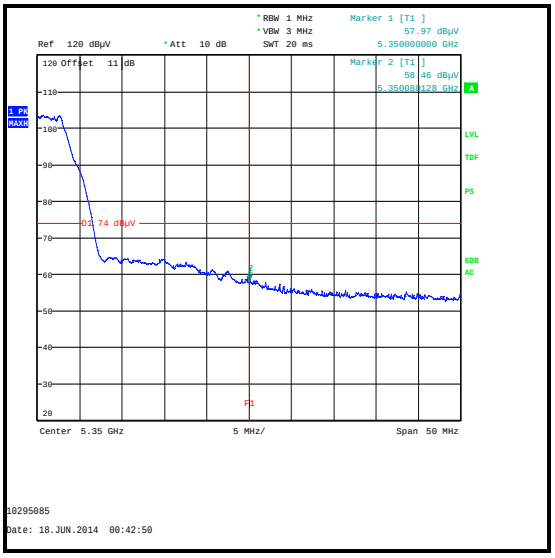
Frequency (MHz)	Level (dBµV/m)	Duty Cycle correction (dB)	Corrected Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5350	45.3	0.1	45.4	54.0	8.6	Complied

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

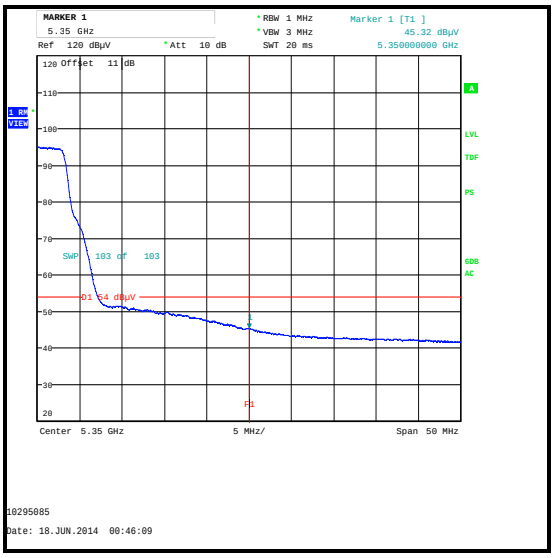
Results: 802.11a / 20 MHz / QPSK / 12 Mbps



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



Upper Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11n / 20 MHz / BPSK / 6.5 Mbps / MCS0 / Peak

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5350	57.8	74.0	16.2	Complied
5352.003	58.5	74.0	15.5	Complied

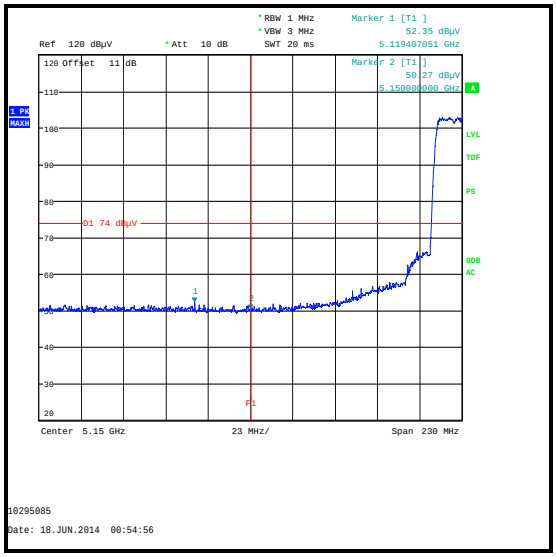
Frequency (MHz)	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
5119.407	52.4	54.0	1.6	Complied
5150	50.3	54.0	3.7	Complied

Results: 802.11n / 20 MHz / BPSK / 6.5 Mbps / MCS0 / Average

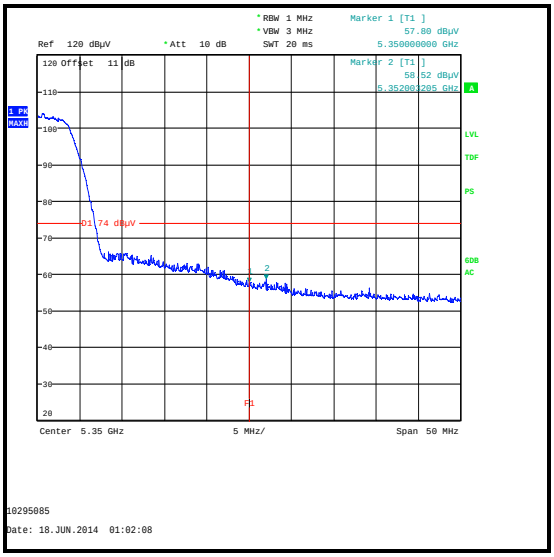
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5350	44.5	54.0	9.5	Complied

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

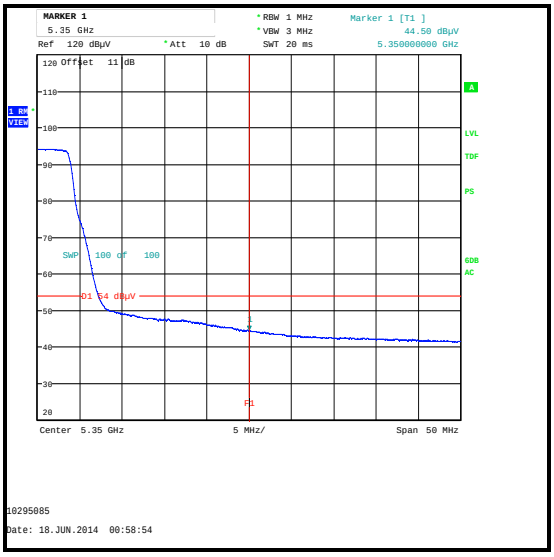
Results: 802.11n / 20 MHz / BPSK / 6.5 Mbps / MCS0



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



Upper Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11ac / 20 MHz / BPSK / 6.5 Mbps / MCS0 / Peak

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5350	58.1	74.0	15.9	Complied

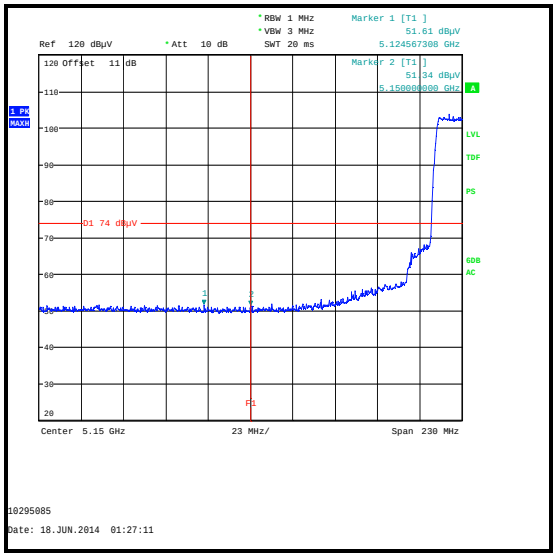
Frequency (MHz)	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
5124.567	51.6	54.0	2.4	Complied
5150	51.3	54.0	2.7	Complied

Results: 802.11ac / 20 MHz / BPSK / 6.5 Mbps / MCS0 / Average

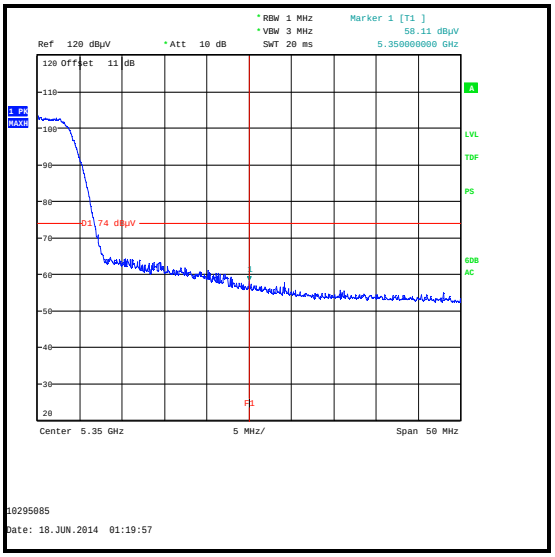
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5350	43.7	54.0	10.3	Complied

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

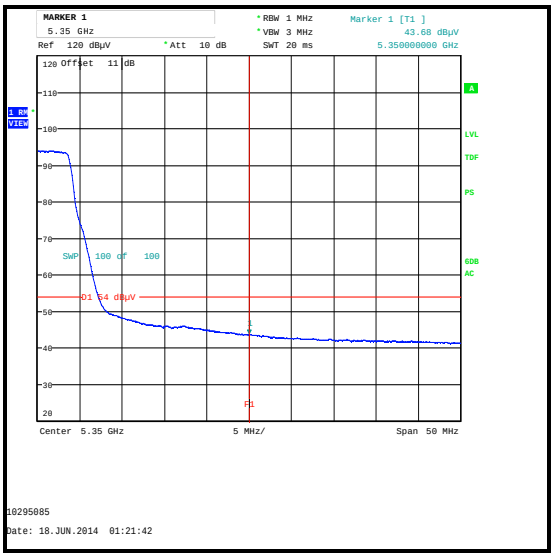
Results: 802.11ac / 20 MHz / BPSK / 6.5 Mbps / MCS0



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



Upper Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11n / 40 MHz / BPSK / 13.5 Mbps / MCS0 / Peak

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5350	57.0	74.0	17.0	Complied
5356.811	58.7	74.0	15.3	Complied

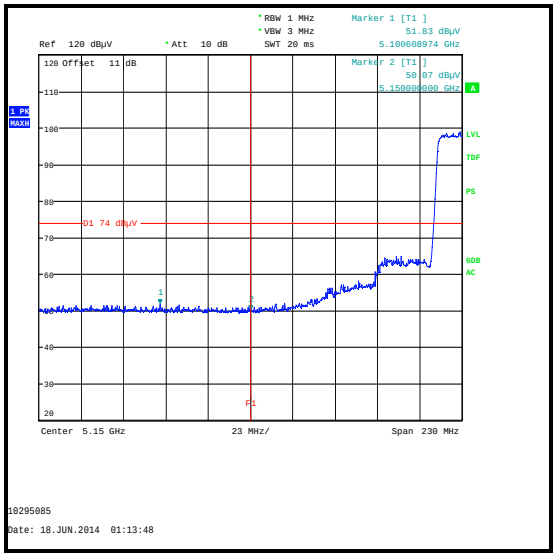
Frequency (MHz)	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
5100.609	51.8	54.0	2.2	Complied
5150	50.1	54.0	3.9	Complied

Results: 802.11n / 40 MHz / BPSK / 13.5 Mbps / MCS0 / Average

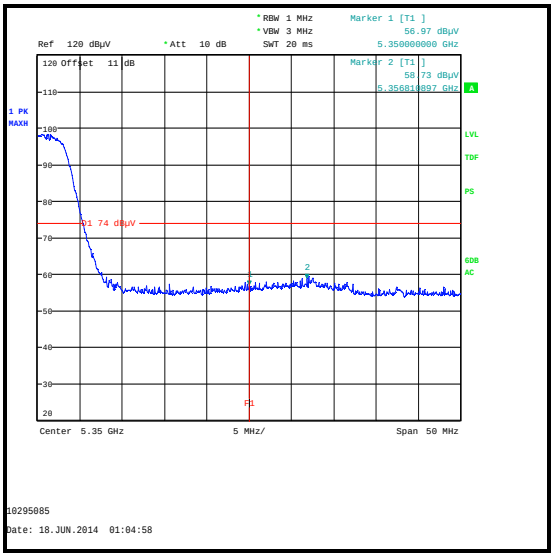
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5350	44.6	54.0	9.4	Complied
5353.446	44.9	54.0	9.1	Complied

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

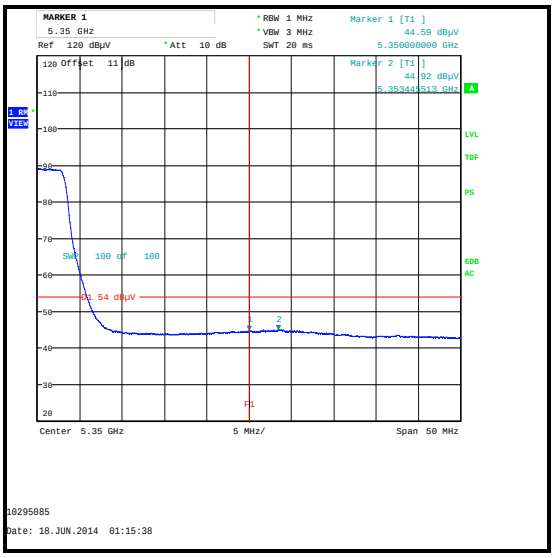
Results: 802.11n / 40 MHz / BPSK / 13.5 Mbps / MCS0



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



Upper Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11ac / 40 MHz / QPSK / 27 Mbps / MCS1 / Peak

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5350	57.3	74.0	16.7	Complied
5351.042	58.7	74.0	15.3	Complied

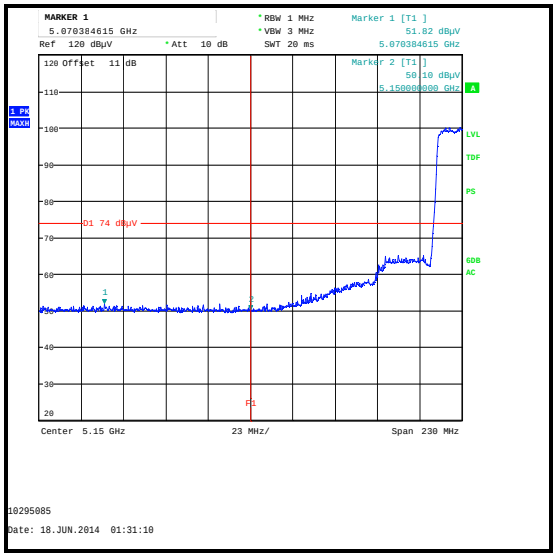
Frequency (MHz)	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
5070.385	51.8	54.0	2.2	Complied
5150	50.1	54.0	3.9	Complied

Results: 802.11ac / 40 MHz / QPSK / 27 Mbps / MCS1 / Average

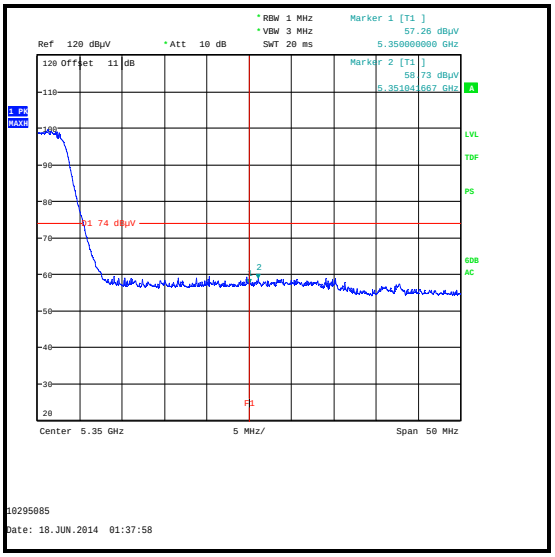
Frequency (MHz)	Level (dBµV/m)	Duty Cycle correction (dB)	Corrected Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5350	45.6	0.1	45.7	54.0	8.3	Complied
5353.686	45.7	0.1	45.8	54.0	8.2	Complied

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

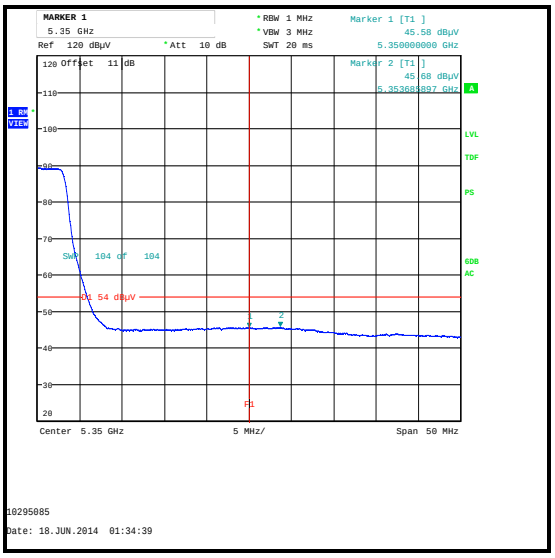
Results: 802.11ac / 40 MHz / QPSK / 27 Mbps / MCS1



Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



Upper Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11ac / 80 MHz / QPSK / 58.5 Mbps / MCS1 / Peak

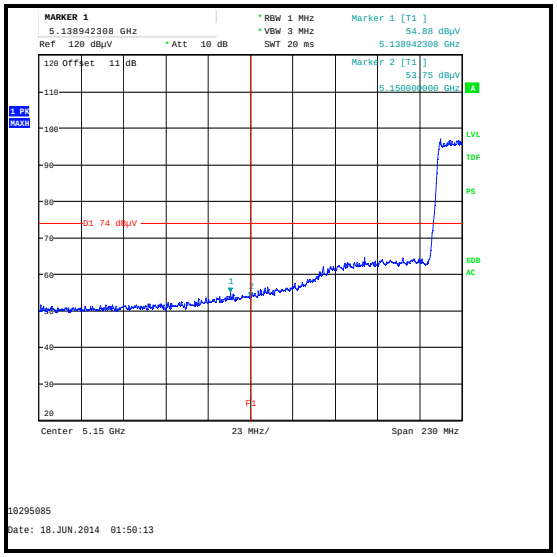
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5138.942	54.9	74.0	19.1	Complied
5150	53.8	74.0	20.2	Complied
5350	55.2	74.0	18.8	Complied
5351.522	56.0	74.0	18.0	Complied

Results: 802.11ac / 80 MHz / QPSK / 58.5 Mbps / MCS1 / Average

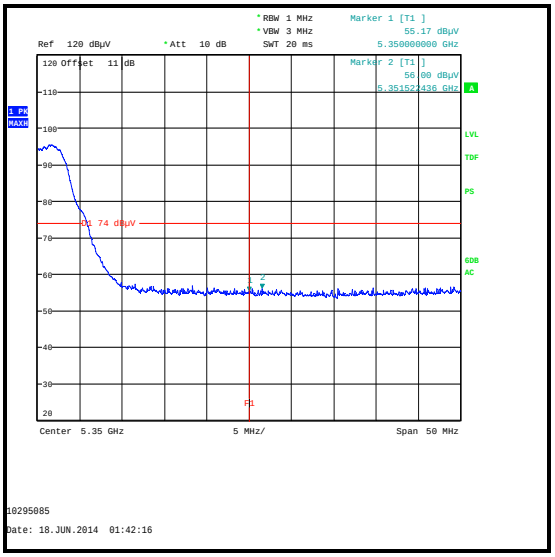
Frequency (MHz)	Level (dBµV/m)	Duty Cycle correction (dB)	Corrected Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5147.788	42.5	0.3	42.8	54.0	11.2	Complied
5150	42.2	0.3	42.5	54.0	11.5	Complied
5350	43.4	0.3	43.7	54.0	10.3	Complied
5373.638	43.7	0.3	44.0	54.0	10.0	Complied

Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)

Results: 802.11ac / 80 MHz / QPSK / 58.5 Mbps / MCS1

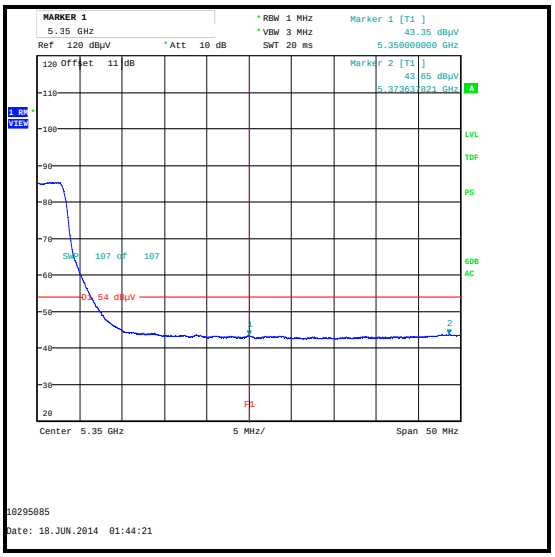


Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement

Lower Band Edge Average Measurement



Upper Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band)

Test Summary:

Test Engineer:	Andrew Edwards	**Test Dates:**	17 June 2014 & 18 June 2014
Test Sample IMEI:	004402452705282		

FCC Reference:	Parts 15.407(b)(3),(7), 15.205 & 15.209(a)
Test Method Used:	ANSI C63.10 Section 6.9.2 & KDB 789033 II.G.

Environmental Conditions:

Temperature (°C):	25 to 26
Relative Humidity (%):	39

Note(s):

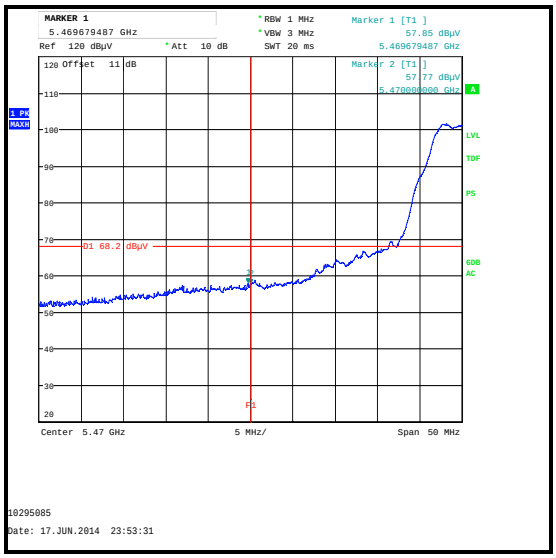
1. An Inquiry was made to the FCC and the response confirmed band edge measurements need only be performed in the EUT modes that produce the highest power and the widest bandwidths. The modes that produced the highest power and widest bandwidth were:
    - 802.11a – QPSK / 12 Mbps.
    - 802.11n HT20 – BPSK / 6.5 Mbps / MCS0.
    - 802.11n HT40 – BPSK / 13.5 Mbps / MCS0.
    - 802.11ac VHT20 – BPSK / 6.5 Mbps / MCS0.
    - 802.11ac VHT40 – QPSK / 27 Mbps / MCS1.
    - 802.11ac VHT80 – QPSK / 58.5 Mbps / MCS1.
2. Lower band edge measurements were performed with the EUT transmitting on the bottom channel. Upper band edge measurements were performed with the EUT transmitting on the top channel.
3. For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz. However, there are restricted bands of operation below the lower band edge at 4.5-5.15 GHz and also at 5.35-5.46 GHz therefore the provisions of FCC Part 15.205 apply. Tests were performed in these restricted bands of operation with the EUT transmitting on the bottom and top channels within 5.47-5.725 GHz band, the results are included in the transmitter 5.25-5.35 GHz band radiated spurious emissions section of this test report.
4. For completeness, results are also shown as EIRP in dBm and also as field strength in dBµV/m. Measured field strength was converted to EIRP in accordance with KDB 789033 II.G.2.d.(iii) using a conversion factor of 95.2.

Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)

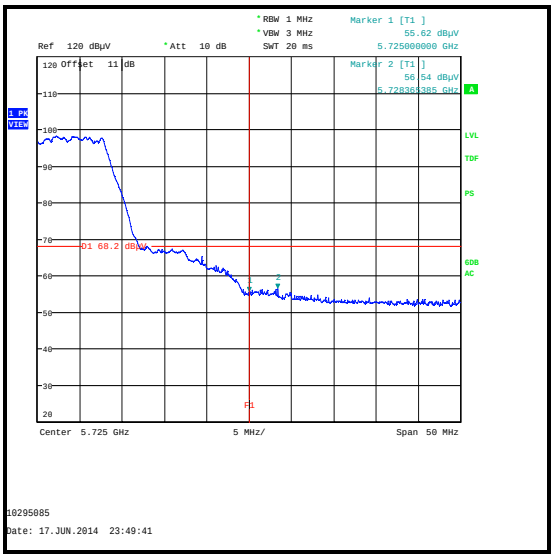
Results: 802.11a / 20 MHz / QPSK / 12 Mbps / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5469.679	-37.3	-27.0	10.3	Complied
5470	-37.4	-27.0	10.4	Complied
5725	-39.6	-27.0	12.6	Complied
5728.365	-38.7	-27.0	11.7	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5469.679	57.9	68.2	10.3	Complied
5470	57.8	68.2	10.4	Complied
5725	55.6	68.2	12.6	Complied
5728.365	56.5	68.2	11.7	Complied



Lower Band Edge Measurement



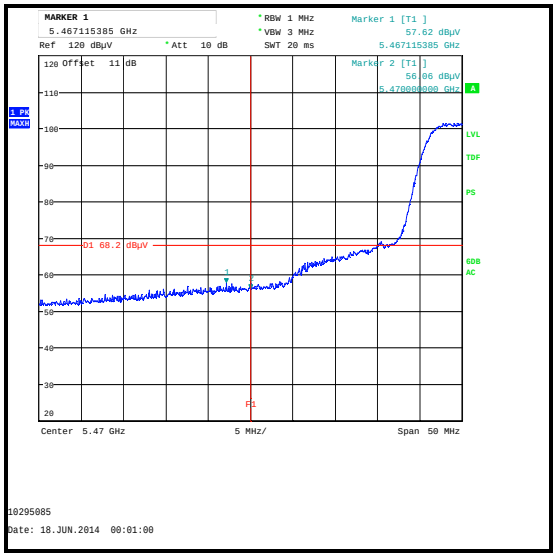
Upper Band Edge Measurement

Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)

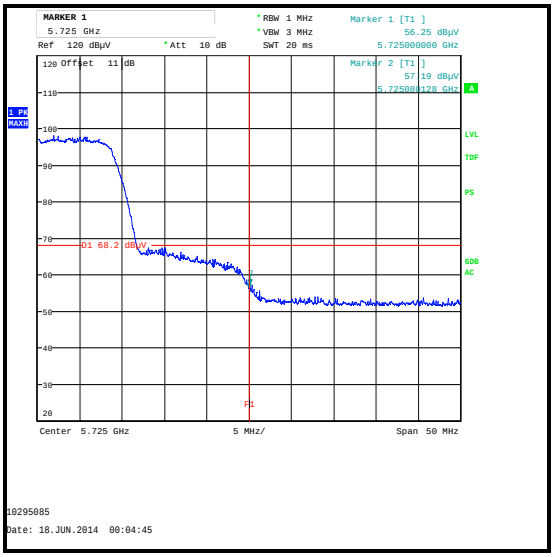
Results: 802.11n / 20 MHz / BPSK / 6.5 Mbps / MCS0 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5467.115	-37.6	-27.0	10.6	Complied
5470	-39.1	-27.0	12.1	Complied
5725	-38.9	-27.0	11.9	Complied
5725.080	-38.0	-27.0	11.0	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5467.115	57.6	68.2	10.6	Complied
5470	56.1	68.2	12.1	Complied
5725	56.3	68.2	11.9	Complied
5725.080	57.2	68.2	11.0	Complied



Lower Band Edge Measurement



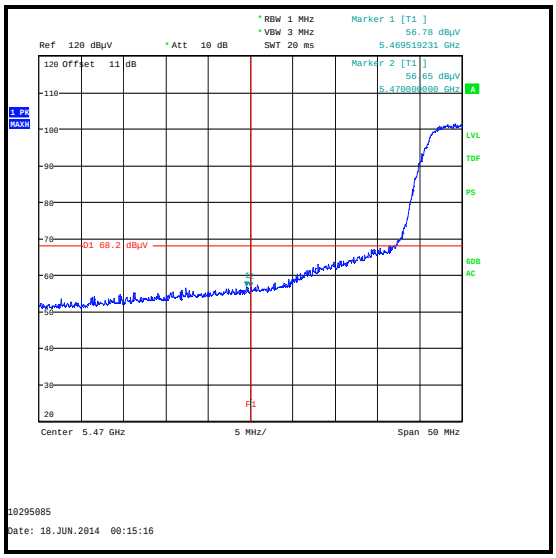
Upper Band Edge Measurement

Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)

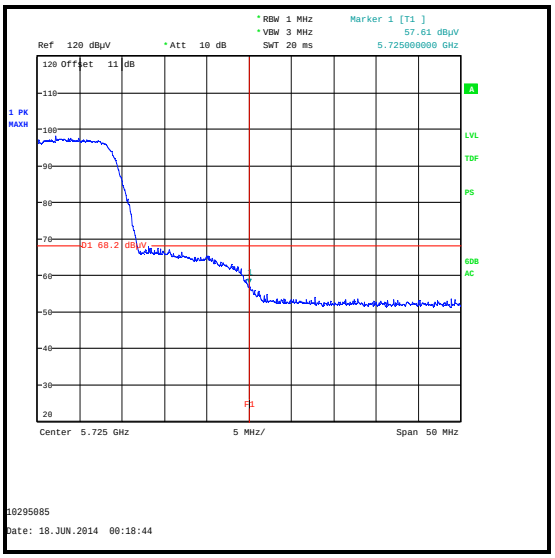
Results: 802.11ac / 20 MHz / BPSK / 6.5 Mbps / MCS0 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5469.519	-38.4	-27.0	11.4	Complied
5470	-38.5	-27.0	11.5	Complied
5725	-37.6	-27.0	10.6	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5469.519	56.8	68.2	11.4	Complied
5470	56.7	68.2	11.5	Complied
5725	57.6	68.2	10.6	Complied



Lower Band Edge Measurement



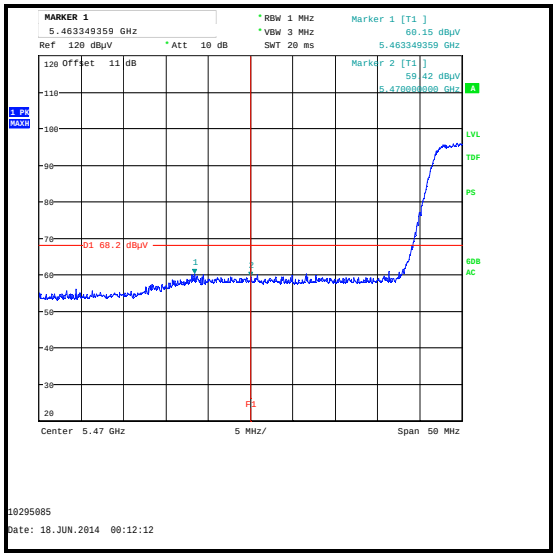
Upper Band Edge Measurement

Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)

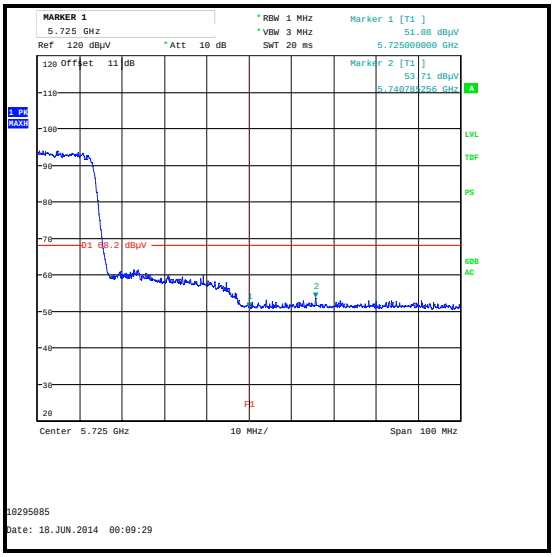
Results: 802.11n / 40 MHz / BPSK / 13.5 Mbps / MCS0 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5463.349	-35.0	-27.0	8.0	Complied
5470	-35.8	-27.0	8.8	Complied
5725	-44.1	-27.0	17.1	Complied
5740.785	-41.5	-27.0	14.5	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5463.349	60.2	68.2	8.0	Complied
5470	59.4	68.2	8.8	Complied
5725	51.1	68.2	17.1	Complied
5740.785	53.7	68.2	14.5	Complied



Lower Band Edge Measurement



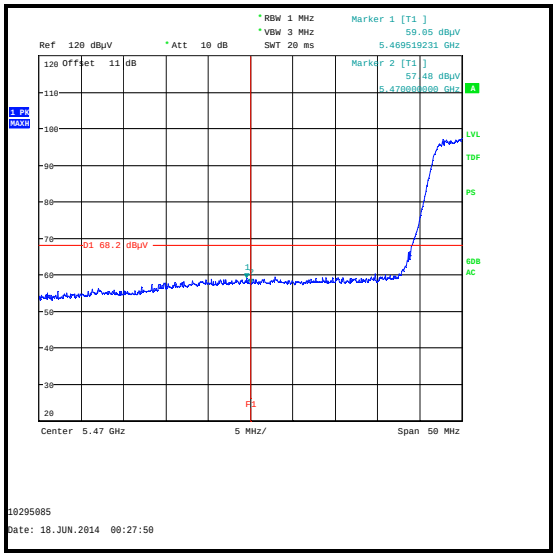
Upper Band Edge Measurement

Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)

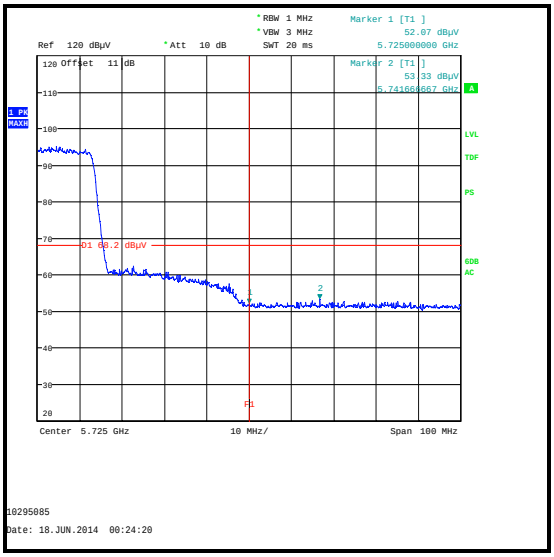
Results: 802.11ac / 40 MHz / QPSK / 27 Mbps / MCS1 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5469.519	-36.1	-27.0	9.1	Complied
5470	-37.7	-27.0	10.7	Complied
5725	-43.1	-27.0	16.1	Complied
5741.667	-41.9	-27.0	14.9	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5469.519	59.1	68.2	9.1	Complied
5470	57.5	68.2	10.7	Complied
5725	52.1	68.2	16.1	Complied
5741.667	53.3	68.2	14.9	Complied



Lower Band Edge Measurement



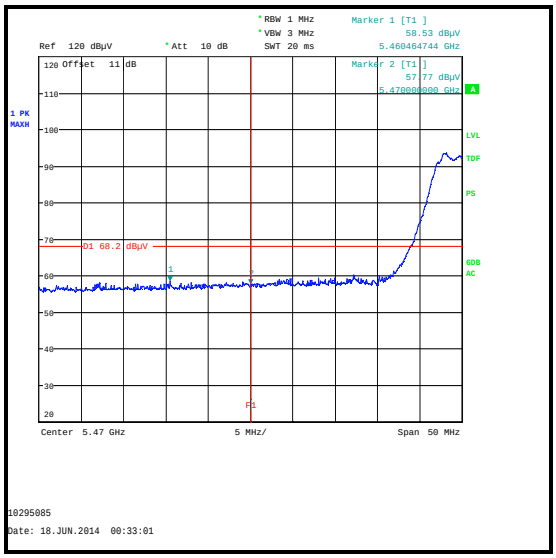
Upper Band Edge Measurement

Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)

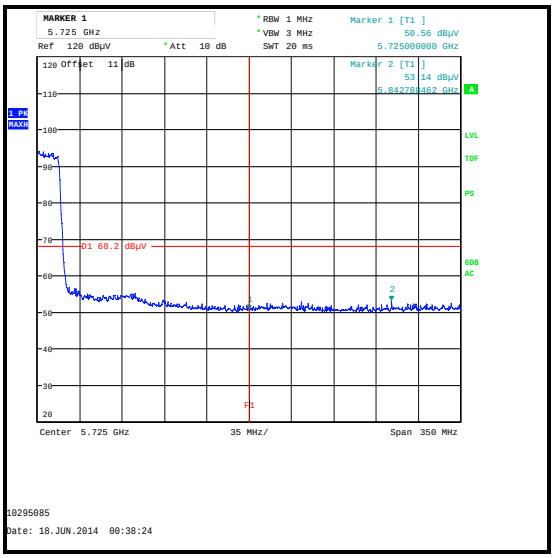
Results: 802.11ac / 80 MHz / QPSK / 58.5 Mbps / MCS1 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5460.465	-36.7	-27.0	9.7	Complied
5470	-37.4	-27.0	10.4	Complied
5725	-44.6	-27.0	17.6	Complied
5842.788	-42.1	-27.0	15.1	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5460.465	58.5	68.2	9.7	Complied
5470	57.8	68.2	10.4	Complied
5725	50.6	68.2	17.6	Complied
5842.788	53.1	68.2	15.1	Complied



Lower Band Edge Measurement



Upper Band Edge Measurement

Transmitter Band Edge Radiated Emissions (5.725-5.85 GHz band)

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	17 June 2014
Test Sample IMEI:	004402452705282		

FCC Reference:	Parts 15.407(b)(4),(7), 15.205 & 15.209(a)
Test Method Used:	ANSI C63.10 Section 6.9.2 & KDB 789033 II.G.

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	40

Note(s):

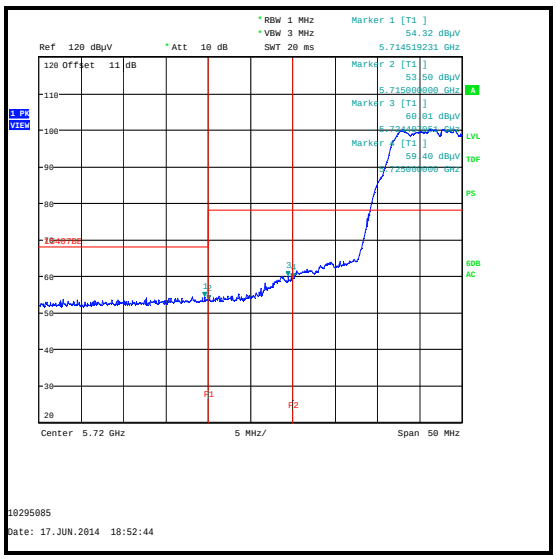
1. An Inquiry was made to the FCC and the response confirmed band edge measurements need only be performed in the EUT modes that produce the highest power and the widest bandwidths. The modes that produced the highest power and widest bandwidth were:
    - 802.11a – QPSK / 12 Mbps.
    - 802.11n HT20 – BPSK / 6.5 Mbps / MCS0.
    - 802.11n HT40 – BPSK / 13.5 Mbps / MCS0.
    - 802.11ac VHT20 – BPSK / 6.5 Mbps / MCS0.
    - 802.11ac VHT40 – QPSK / 27 Mbps / MCS1.
    - 802.11ac VHT80 – QPSK / 58.5 Mbps / MCS1.
2. Lower band edge measurements were performed with the EUT transmitting on the bottom channel. Upper band edge measurements were performed with the EUT transmitting on the top channel.
3. For completeness, results are also shown as EIRP in dBm and also as field strength in dBµV/m. Measured field strength was converted to EIRP in accordance with KDB 789033 G.2.d)(iii) using a conversion factor of 95.2.

Transmitter Band Edge Radiated Emissions (5.725-5.85 GHz band operation) (continued)

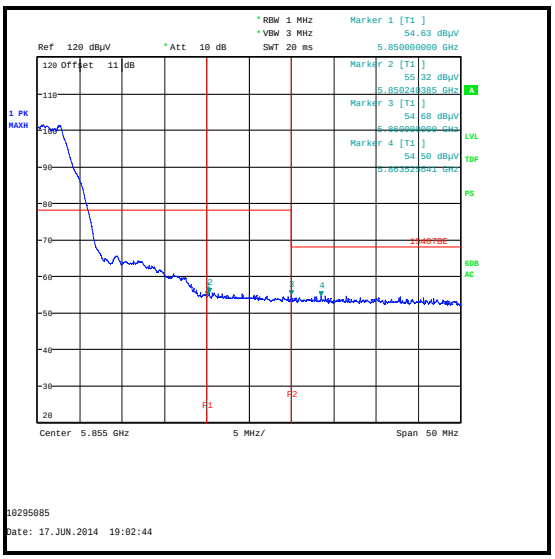
Results: 802.11a / 20 MHz / QPSK / 12 Mbps / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5714.519	-40.9	-27.0	13.9	Complied
5715	-41.7	-27.0	14.7	Complied
5724.407	-35.2	-17.0	18.2	Complied
5725	-35.8	-17.0	18.8	Complied
5850	-40.6	-17.0	23.6	Complied
5850.240	-39.9	-17.0	22.9	Complied
5860	-40.5	-27.0	13.5	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5714.519	54.3	68.2	13.9	Complied
5715	53.5	68.2	14.7	Complied
5724.407	60.0	78.2	18.2	Complied
5725	59.4	78.2	18.8	Complied
5850	54.6	78.2	23.6	Complied
5850.240	55.3	78.2	22.9	Complied
5860	54.7	68.2	13.5	Complied



Lower Band Edge Measurement



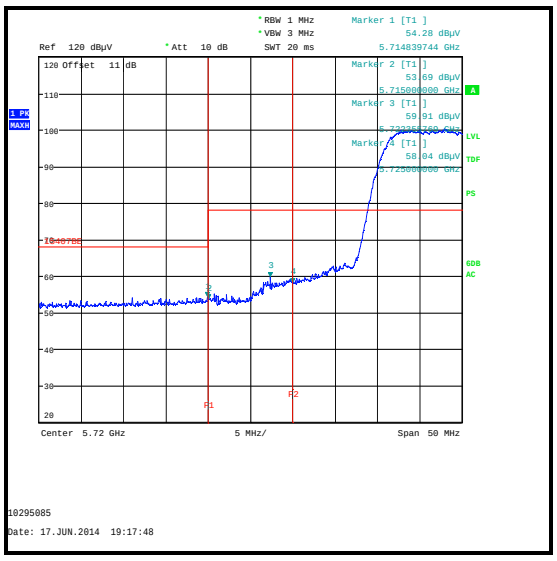
Upper Band Edge Measurement

Transmitter Band Edge Radiated Emissions (5.725-5.85 GHz band operation) (continued)

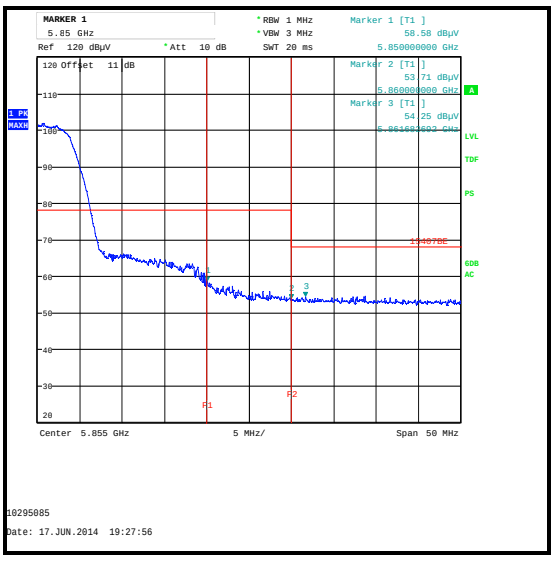
Results: 802.11n / 20 MHz / BPSK / 6.5 Mbps / MCS0 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5714.840	-40.9	-27.0	13.9	Complied
5715	-41.5	-27.0	14.5	Complied
5722.356	-35.3	-17.0	18.3	Complied
5725	-37.2	-17.0	20.2	Complied
5850	-36.6	-17.0	19.6	Complied
5860	-41.5	-27.0	14.5	Complied
5861.683	-40.9	-27.0	13.9	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5714.840	54.3	68.2	13.9	Complied
5715	53.7	68.2	14.5	Complied
5722.356	59.9	78.2	18.3	Complied
5725	58.0	78.2	20.2	Complied
5850	58.6	78.2	19.6	Complied
5860	53.7	68.2	14.5	Complied
5861.683	54.3	68.2	13.9	Complied



Lower Band Edge Measurement



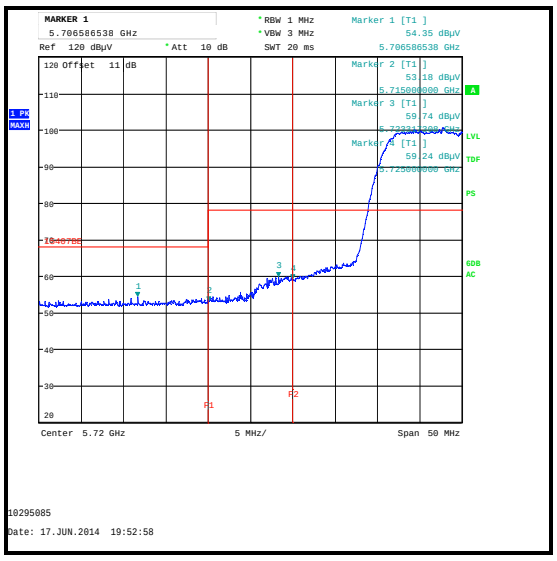
Upper Band Edge Measurement

Transmitter Band Edge Radiated Emissions (5.725-5.85 GHz band operation) (continued)

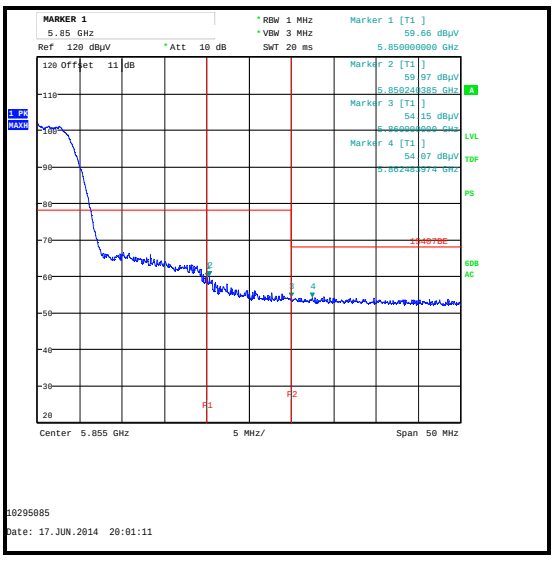
Results: 802.11ac / 20 MHz / BPSK / 6.5 Mbps / MCS0 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5706.587	-40.8	-27.0	13.8	Complied
5715	-42.0	-27.0	15.0	Complied
5723.317	-35.5	-17.0	18.5	Complied
5725	-36.0	-17.0	19.0	Complied
5850	-35.5	-17.0	18.5	Complied
5850.240	-35.2	-17.0	18.2	Complied
5860	-41.0	-27.0	14.0	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5706.587	54.4	68.2	13.8	Complied
5715	53.2	68.2	15.0	Complied
5723.317	59.7	78.2	18.5	Complied
5725	59.2	78.2	19.0	Complied
5850	59.7	78.2	18.5	Complied
5850.240	60.0	78.2	18.2	Complied
5860	54.2	68.2	14.0	Complied



Lower Band Edge Measurement



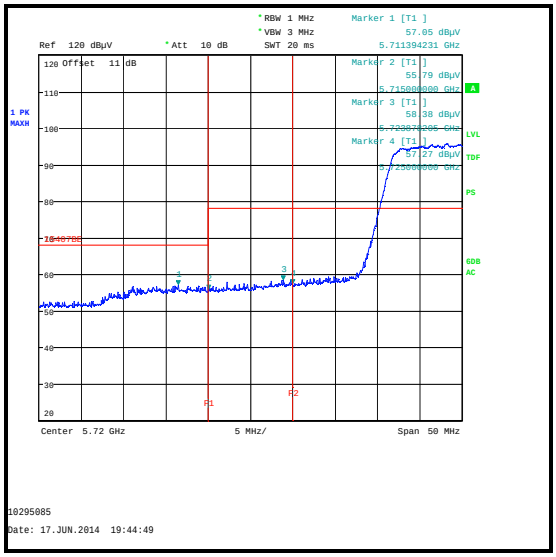
Upper Band Edge Measurement

Transmitter Band Edge Radiated Emissions (5.725-5.85 GHz band operation) (continued)

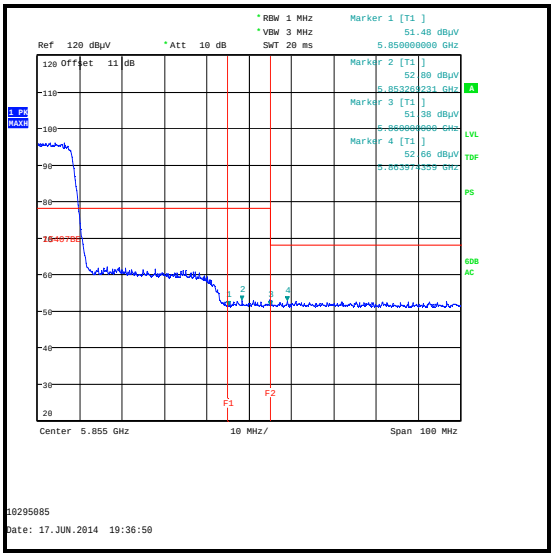
Results: 802.11n / 40 MHz / BPSK / 13.5 Mbps / MCS0 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5711.394	-38.1	-27.0	11.1	Complied
5715	-39.4	-27.0	12.4	Complied
5723.878	-36.8	-17.0	19.8	Complied
5725	-37.9	-17.0	20.9	Complied
5850	-43.7	-17.0	26.7	Complied
5853.269	-42.4	-17.0	25.4	Complied
5860	-43.8	-27.0	16.8	Complied
5863.974	-42.5	-27.0	15.5	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5711.394	57.1	68.2	11.1	Complied
5715	55.8	68.2	12.4	Complied
5723.878	58.4	78.2	19.8	Complied
5725	57.3	78.2	20.9	Complied
5850	51.5	78.2	26.7	Complied
5853.269	52.8	78.2	25.4	Complied
5860	51.4	68.2	16.8	Complied
5863.974	52.7	68.2	15.5	Complied



Lower Band Edge Measurement



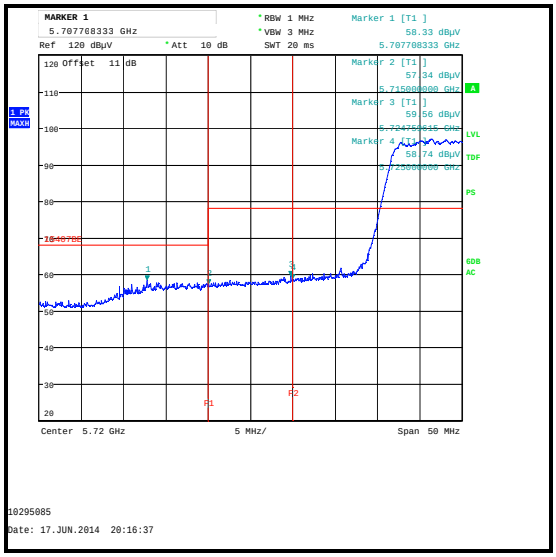
Upper Band Edge Measurement

Transmitter Band Edge Radiated Emissions (5.725-5.85 GHz operation) (continued)

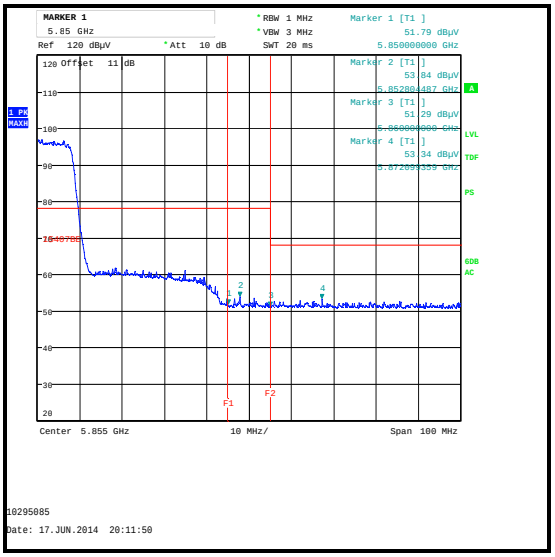
Results: 802.11ac / 40 MHz / QPSK / 27 Mbps / MCS1 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5707.708	-36.9	-27.0	9.9	Complied
5715	-37.9	-27.0	10.9	Complied
5724.760	-35.6	-17.0	18.6	Complied
5725	-36.5	-17.0	19.5	Complied
5850	-43.4	-17.0	26.4	Complied
5852.804	-41.4	-17.0	24.4	Complied
5860	-43.9	-27.0	16.9	Complied
5872.099	-41.9	-27.0	14.9	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5707.708	58.3	68.2	9.9	Complied
5715	57.3	68.2	10.9	Complied
5724.760	59.6	78.2	18.6	Complied
5725	58.7	78.2	19.5	Complied
5850	51.8	78.2	26.4	Complied
5852.804	53.8	78.2	24.4	Complied
5860	51.3	68.2	16.9	Complied
5872.099	53.3	68.2	14.9	Complied



Lower Band Edge Measurement



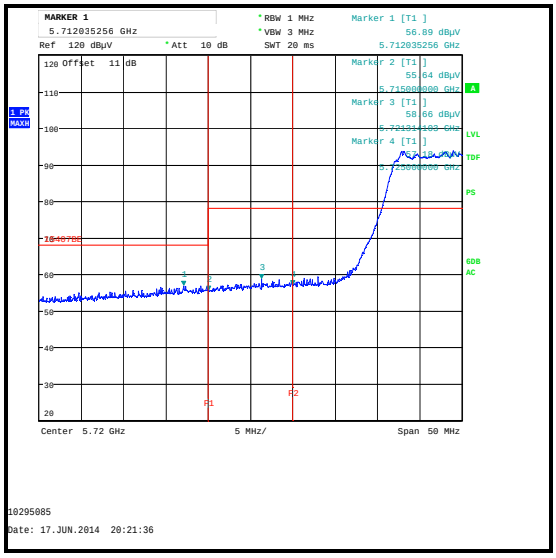
Upper Band Edge Measurement

Transmitter Band Edge Radiated Emissions (5.725-5.85 GHz band operation) (continued)

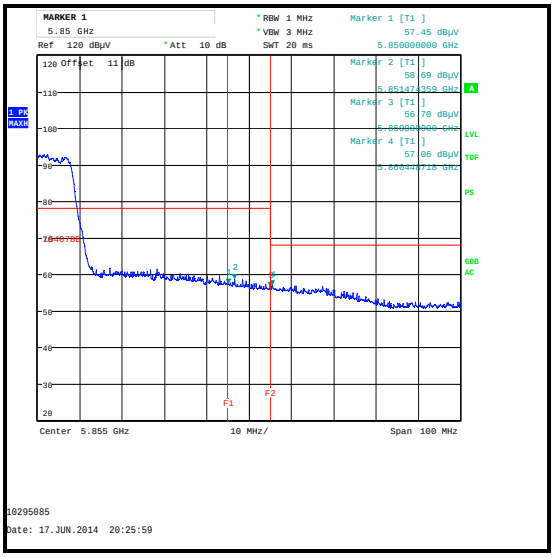
Results: 802.11ac / 80 MHz / QPSK / 58.5 Mbps / MCS1 / Peak

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5712.035	-38.3	-27.0	11.3	Complied
5715	-39.6	-27.0	12.6	Complied
5721.314	-36.5	-17.0	19.5	Complied
5725	-38.0	-17.0	21.0	Complied
5850	-37.7	-17.0	20.7	Complied
5851.474	-36.5	-17.0	19.5	Complied
5860	-38.5	-27.0	11.5	Complied
5860.449	-38.1	-27.0	11.1	Complied

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
5712.035	56.9	68.2	11.3	Complied
5715	55.6	68.2	12.6	Complied
5721.314	58.7	78.2	19.5	Complied
5725	57.2	78.2	21.0	Complied
5850	57.5	78.2	20.7	Complied
5851.474	58.7	78.2	19.5	Complied
5860	56.7	68.2	11.5	Complied
5860.449	57.1	68.2	11.1	Complied



Lower Band Edge Measurement



Upper Band Edge Measurement

Transmitter Band Edge Radiated Emissions (continued)

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1656	Thermohygrometer	JM Handelspunkt	30.5015.13	None stated	14 Mar 2015	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	14 Nov 2014	12
M1874	Test Receiver	Rohde & Schwarz	ESU26	100553	13 May 2015	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	18 May 2015	12
A253	Antenna	Flann Microwave	12240-20	128	14 Nov 2014	12
A1396	Attenuator	Huber & Suhner	6810.17.B	757987	02 May 2015	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
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	±4.69 dB
Maximum Conducted Output Power	5.15 GHz to 5.850 GHz	95%	±1.13 dB
Maximum Power Spectral Density	5.15 GHz to 5.850 GHz	95%	±1.13 dB
Minimum 6 dB Emission Bandwidth	5.15 GHz to 5.850 GHz	95%	±3.92 %
26 dB Emission Bandwidth	5.15 GHz to 5.850 GHz	95%	±3.92 %
Radiated Spurious Emissions	30 MHz to 1 GHz	95%	±5.65 dB
Radiated Spurious Emissions	1 GHz to 40 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	-	-	EUT Description update

--- END OF REPORT ---