

**5.2.6 Transmitter Out of Band Radiated Emissions****Test Summary:**

<b>Test Engineer:</b>	Ian Watch	<b>Test Date:</b>	17 June 2013
<b>Test Sample Serial Number:</b>	0004565000B3		

<b>FCC Reference:</b>	Parts 15.407(b)(2),(3),(6),(7) & 15.209(a)
<b>Test Method Used:</b>	FCC KDB 789033 H) & ANSI C63.10 Sections 6.3 and 6.5
<b>Frequency Range:</b>	30 MHz to 1000 MHz

**Environmental Conditions:**

<b>Temperature (°C):</b>	24
<b>Relative Humidity (%):</b>	40

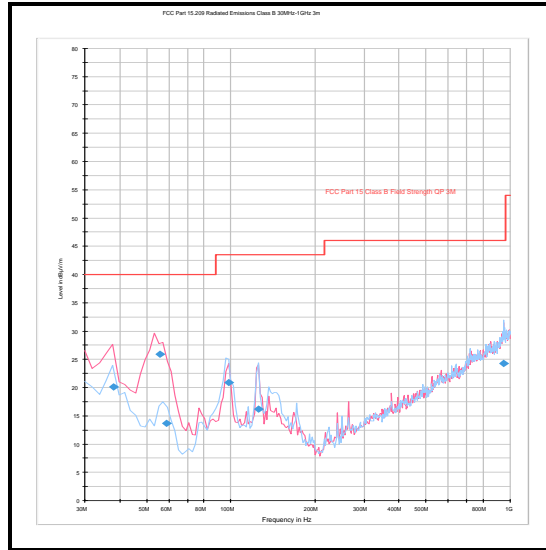
**Note(s):**

1. Radiated spurious emissions testing was performed with the EUT transmitting at maximum power on a 5 MHz channel with 256QAM modulation. This configuration produced the highest emission levels and was therefore deemed to be worst case. The EUT was transmitting at >99% duty cycle. The highest gain antenna of each antenna type was tested using the appropriate maximum power setting.
2. Pre-scans with the EUT transmitting on the top channel (highest configurable channel) were performed according FCC Part 15.407(b)(3) which states for transmitters operating in the band 5.47 to 5.725 GHz: all emissions outside of the 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. All other emissions were greater than 20 dB below the appropriate limit or below the noise floor of the measurement system.
6. Measurements below 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed in the centre of the chamber turntable. The EUT and antenna were mounted onto a pole in a typical end-user configuration and interconnected using the RF cables supplied by the manufacturer. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres

**Transmitter Radiated Emissions (continued)**

**Results: Top Channel / 256QAM / Parabolic Antenna**

Frequency (MHz)	Antenna Polarity	Quasi-Peak Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
38.002	Vertical	20.1	40.0	19.9	Complied

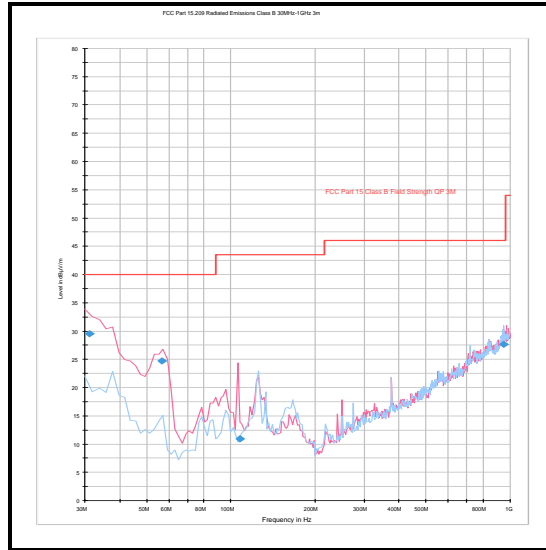


*Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.*

**Transmitter Out of Band Radiated Emissions (continued)**

**Results: Top Channel / 256QAM / Plate Antenna**

Frequency (MHz)	Antenna Polarity	Quasi-Peak Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
31.275	Vertical	29.5	40.0	10.5	Complied

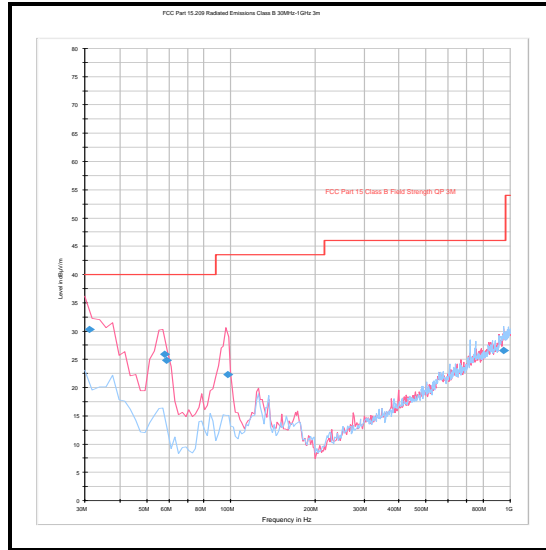


*Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.*

**Transmitter Radiated Emissions (continued)**

**Results: Top Channel / 256QAM / Sectorised Antenna**

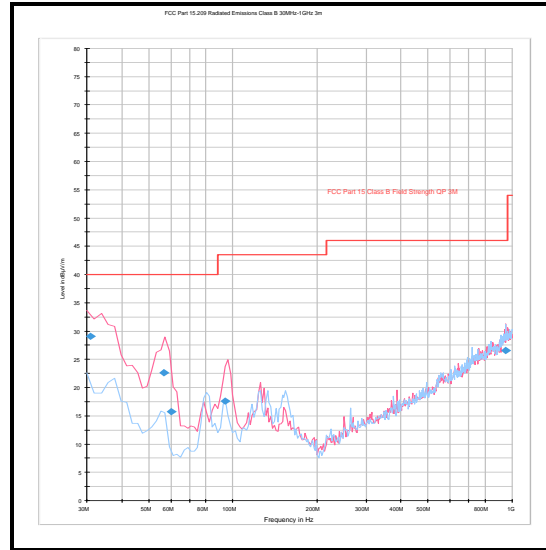
Frequency (MHz)	Antenna Polarity	Quasi-Peak Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
31.270	Vertical	30.2	40.0	9.8	Complied



*Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.*

**Transmitter Radiated Emissions (continued)****Results: Top Channel / 256QAM / Omnidirectional Antenna**

Frequency (MHz)	Antenna Polarity	Quasi-Peak Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
30.962	Vertical	29.0	40.0	11.0	Complied



Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.

**Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
A490	Antenna	Chase	CBL6111A	1590	18 Apr 2014	12
A1834	Attenuator	Hewlett Packard	8491B	10444	27 Jan 2014	12
G0543	Pre Amplifier	Sonoma	310N	230801	04 Jul 2013	3
K0001	5m RSE Chamber	Rainford EMC	N/A	N/A	24 Oct 2013	12
L1097	Low Pass Filter	AtlanTec RF	AS6573	13022102350	Calibrated before use	12
M1273	Test Receiver	Rohde & Schwarz	ESIB 26	100275	07 Feb 2014	12
M1622	Thermohygrometer	JM Handelpunkt	30.5015.13	Not stated	24 May 2014	12

**Transmitter Out of Band Radiated Emissions (continued)****Test Summary:**

<b>Test Engineers:</b>	David Doyle & Philip Harrison	<b>Test Dates:</b>	19 June 2013 to 02 August 2013
<b>Test Sample Serial Number:</b>	0004565000D0		

<b>FCC Reference:</b>	Part 15.407(b)(3),(7) & 15.209(a)
<b>Test Method Used:</b>	FCC KDB 789033 H) & ANSI C63.10 Sections 6.3 and 6.6
<b>Frequency Range:</b>	1 GHz to 40 GHz

**Environmental Conditions:**

<b>Temperature (°C):</b>	24 to 29
<b>Relative Humidity (%):</b>	31 to 48

**Note(s):**

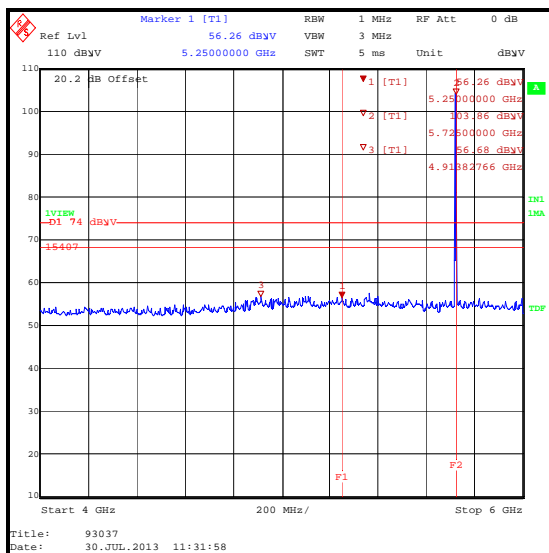
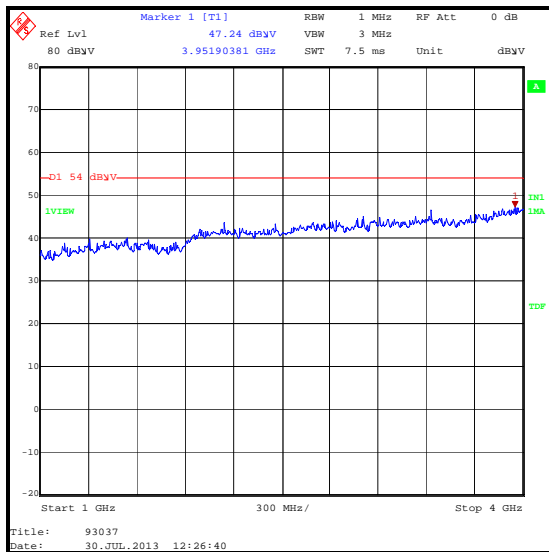
1. Radiated spurious emissions testing was performed with the EUT transmitting at maximum power on a 5 MHz channel with 256QAM modulation. This configuration produced the highest emission levels and was therefore deemed to be worst case. The EUT was transmitting at >99% duty cycle. The highest gain antenna of each antenna type was tested using the appropriate maximum power setting.
2. Pre-scans with the EUT transmitting on the top channel (highest configurable channel) were performed according to FCC Part 15.407(b)(3) which states 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.
3. 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.
4. The two frequency lines on the 4 GHz to 6 GHz plots show the lower band edge of the 5.25-5.35 GHz band and the upper band edge of the 5.47-5.725 GHz band. The emission shown on the 4 GHz to 6 GHz plots just below the 5.725 GHz frequency line is the EUT fundamental.
5. Tests were performed as a field strength measurements and any emissions in non-restricted bands converted to a E.I.R.P. value in dBm in accordance with FCC KDB 789033 H)2)d(i) using a conversion factor of 95.2. A peak detector was used (worst case) unless otherwise stated. The measured values incorporates the calibrated antenna factor and cable loss.
6. All emissions shown on the pre-scan plots were investigated and found to be below the measurement system noise floor or ambient. Therefore the highest noise floor measurements were recorded. Where the highest levels of noise floor occurred in a restricted band, the maximum field strength level was compared to peak (74 dB $\mu$ V/m) and average (54 dB $\mu$ V/m) limits. Where the highest levels of noise floor occurred in a non-restricted band, the maximum field strength was converted to E.I.R.P. and compared to the -27 dBm/MHz E.I.R.P. limit. The -27 dBm/MHz E.I.R.P. limit converted to a field strength limit of 68.2 dB $\mu$ V/m at 3 metres. This limit line is marked on the plots as "15407".
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 in the centre of the chamber turntable. Final measurements above 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. 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 (continued)**

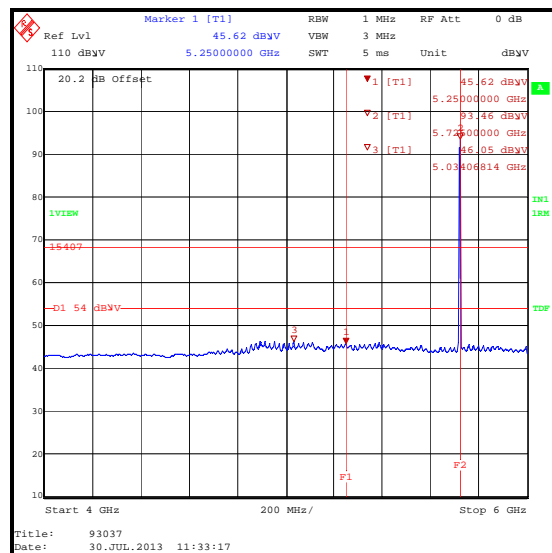
**Results: Top Channel / 256QAM / Peak / Parabolic Antenna**

Frequency (MHz)	Antenna Polarity	Peak Level (dB $\mu$ V/m)	Peak Limit (dB $\mu$ V/m)	Margin (dB)	Result
5400.040	Horizontal	60.5	74.0	13.5	Complied

Frequency (MHz)	Antenna Polarity	Average Level (dB $\mu$ V/m)	Average Limit (dB $\mu$ V/m)	Margin (dB)	Result
5398.717	Horizontal	48.4	54.0	5.6	Complied



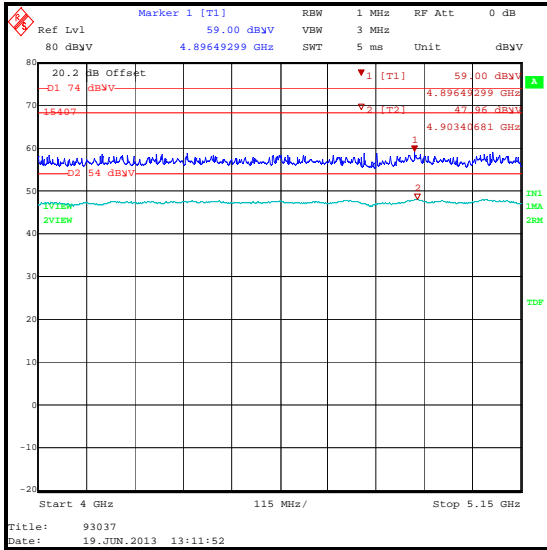
**Peak Detector**



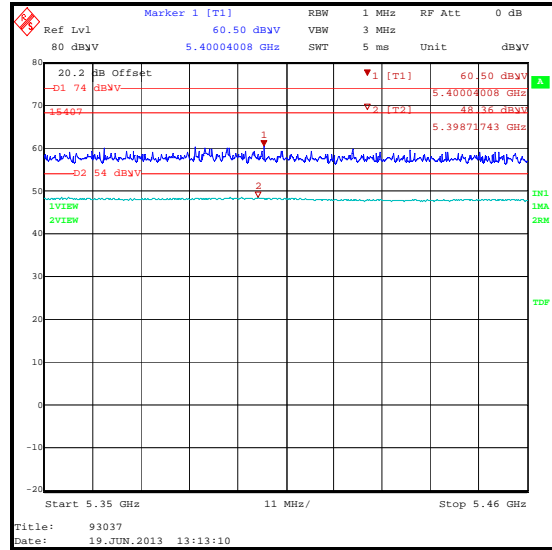
**Average Detector**

**Transmitter Out of Band Radiated Emissions (continued)**

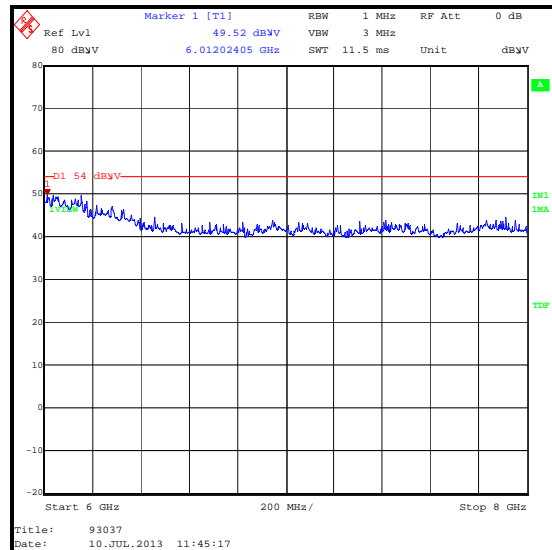
**Results: Top Channel / 256QAM / Peak / Parabolic Antenna**



**Restricted Band 4.5 GHz to 5.15 GHz**



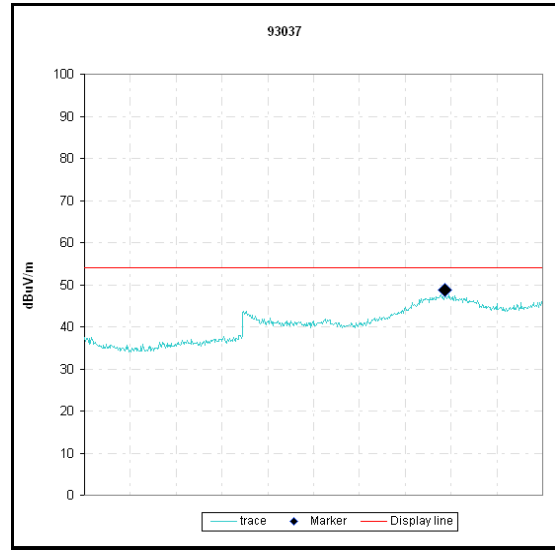
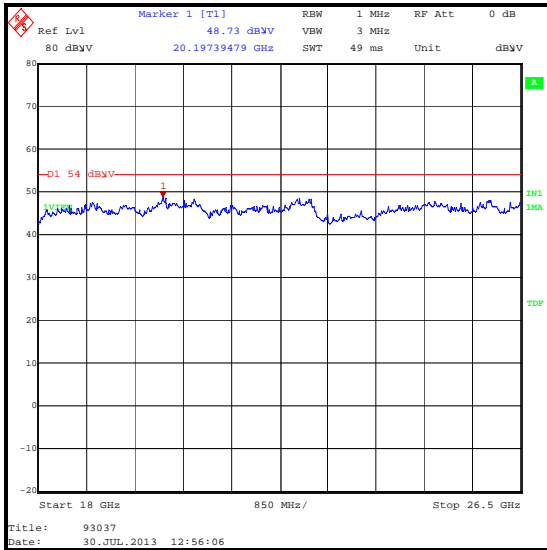
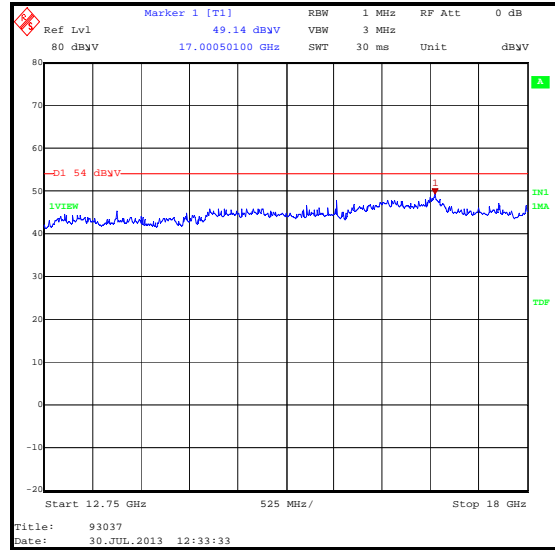
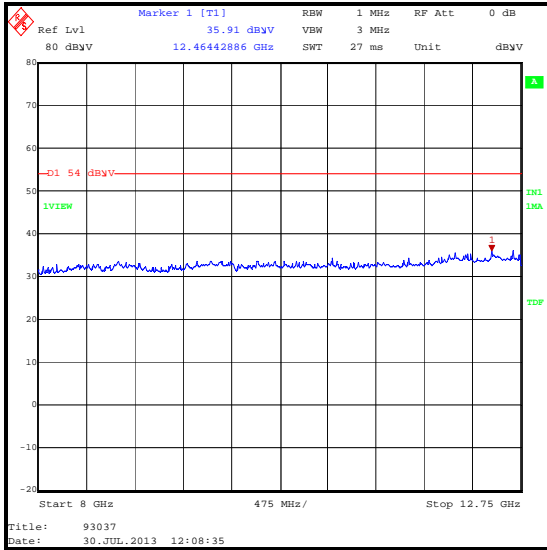
**Restricted Band 5.35 GHz to 5.46 GHz**





**Transmitter Out of Band Radiated Emissions (continued)**

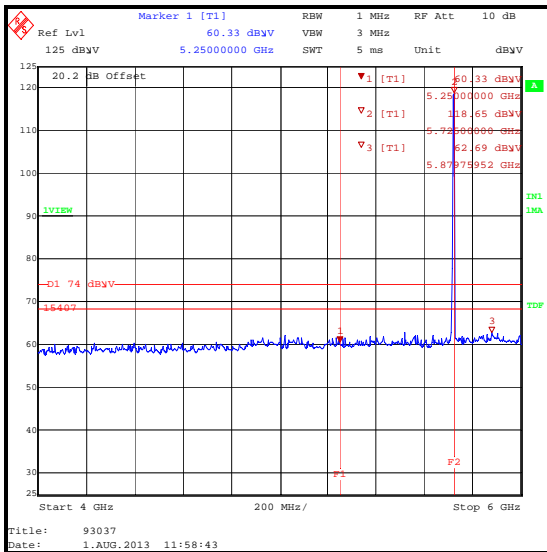
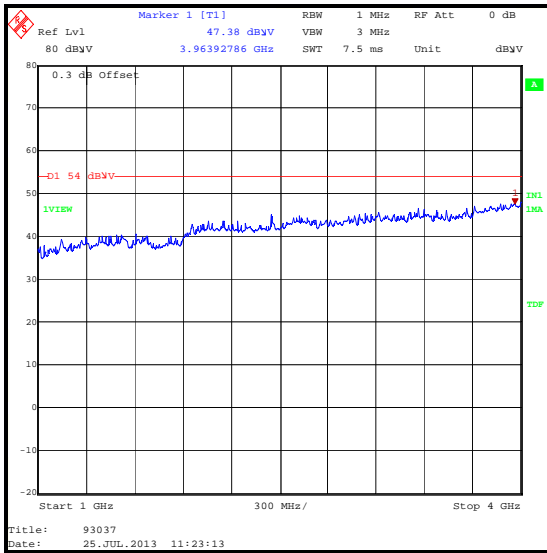
**Results: Top Channel / 256QAM / Peak / Parabolic Antenna**



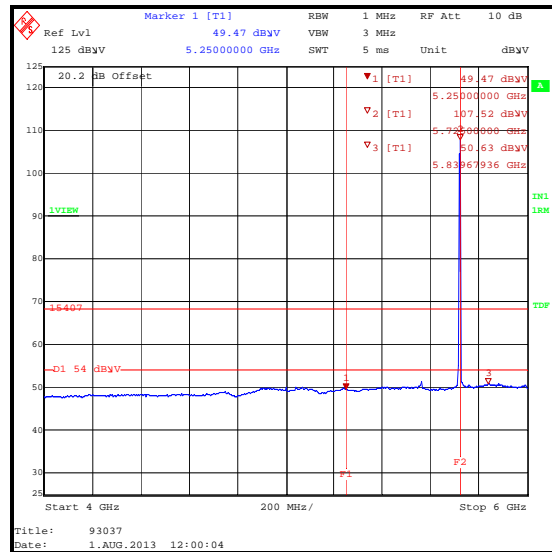
**Transmitter Out of Band Radiated Emissions (continued)**

**Results: Top Channel / 256QAM / Plate Antenna**

Frequency (MHz)	Antenna Polarity	Maximum Level (dBm)	Limit (dBm)	Margin (dB)	Result
5879.760	Horizontal	-32.5	-27.0	5.5	Complied



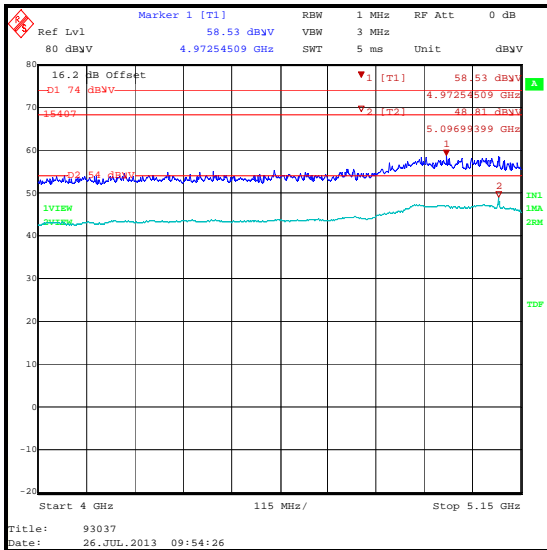
**Peak Detector**



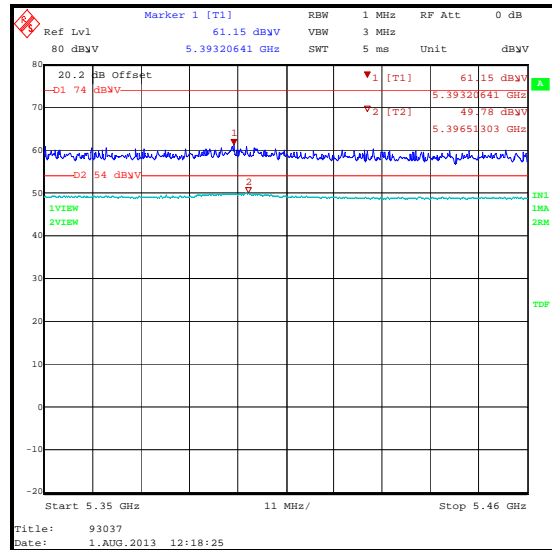
**Average Detector**

### Transmitter Out of Band Radiated Emissions (continued)

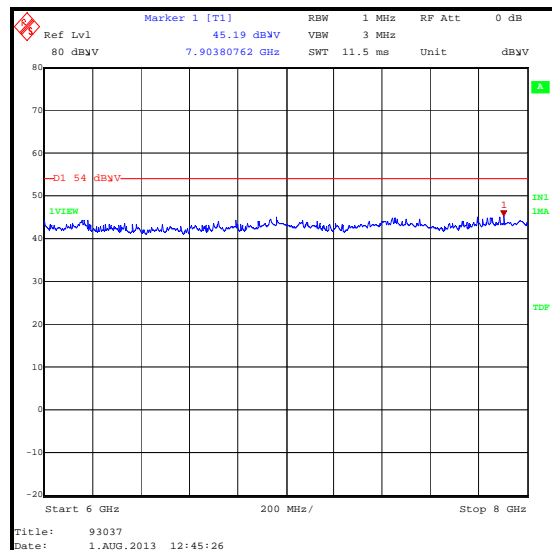
#### Results: Top Channel / 256QAM / Plate Antenna



Restricted Band 4.0 GHz to 5.15 GHz

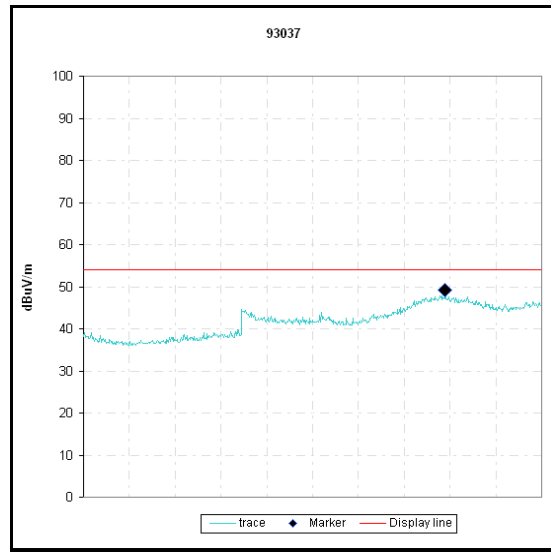
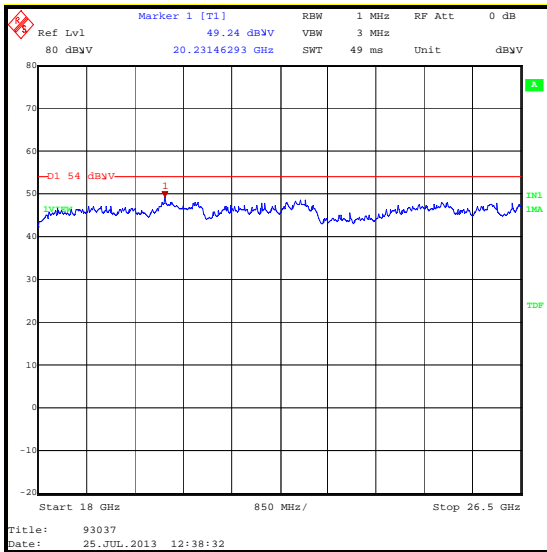
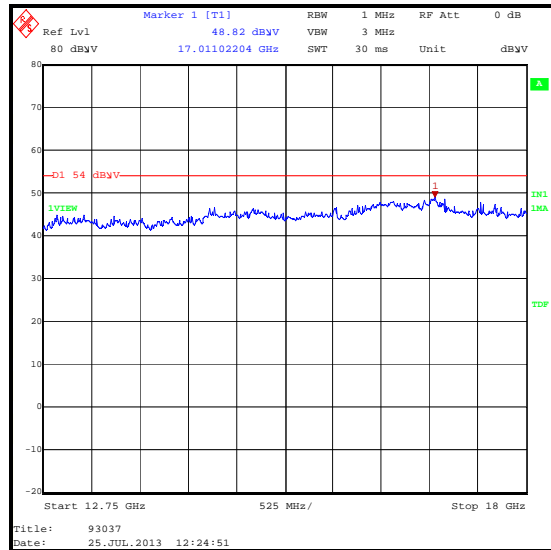
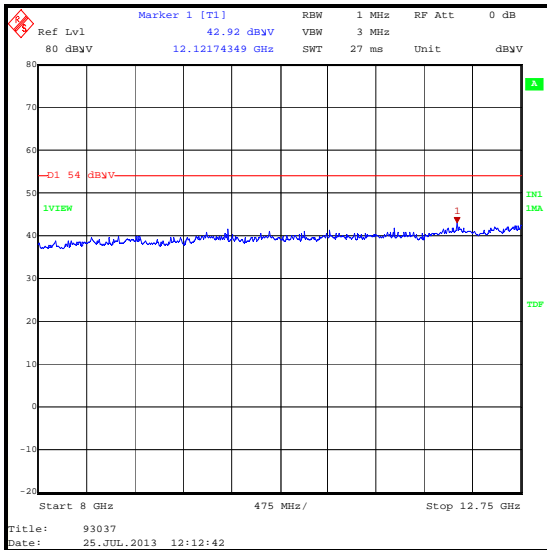


Restricted Band 5.35 GHz to 5.46 GHz



### Transmitter Out of Band Radiated Emissions (continued)

#### Results: Top Channel / 256QAM / Plate Antenna

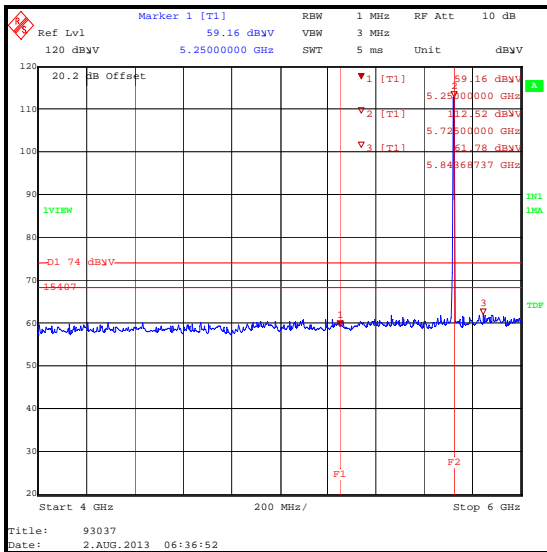
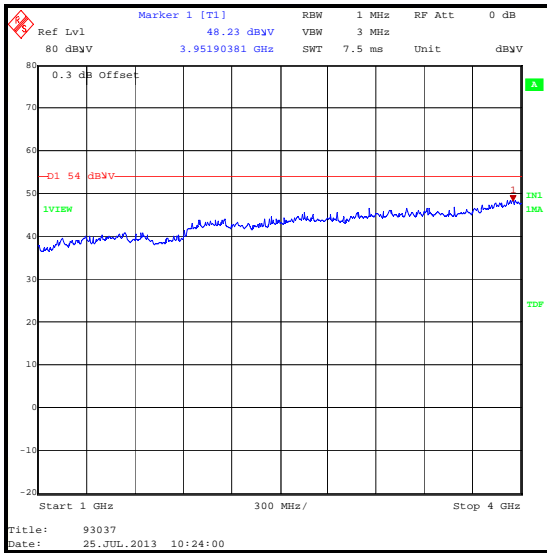


RBW 1000 KHz; VBW 3000 KHz  
 Peak 37142.500 MHz; 48.2 dBuV/m  
 Display line: 54 dBuV/m  
 Start Freq: 26500 MHz Stop Freq: 40000 MHz

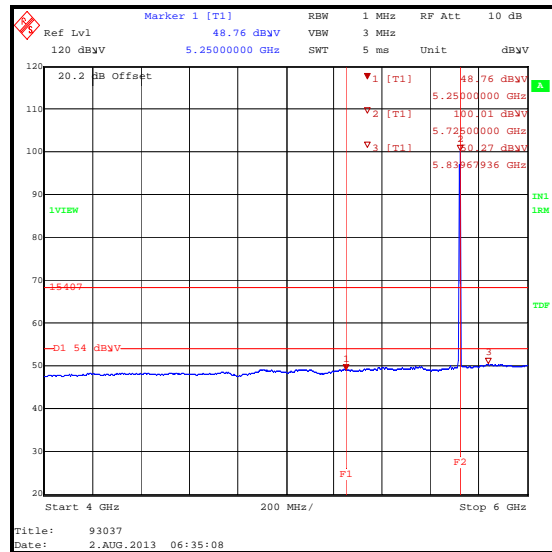
**Transmitter Out of Band Radiated Emissions (continued)**

**Results: Top Channel / 256QAM / Sectorised Antenna**

Frequency (MHz)	Antenna Polarity	Maximum Level (dBm)	Limit (dBm)	Margin (dB)	Result
5843.687	Horizontal	-33.4	-27.0	6.4	Complied



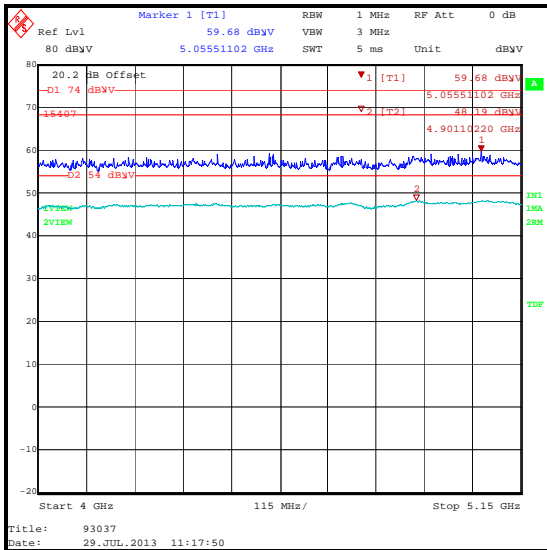
**Peak Detector**



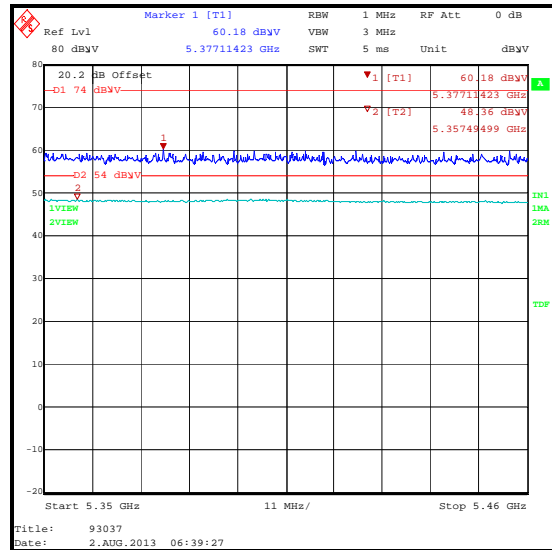
**Average Detector**

**Transmitter Out of Band Radiated Emissions (continued)**

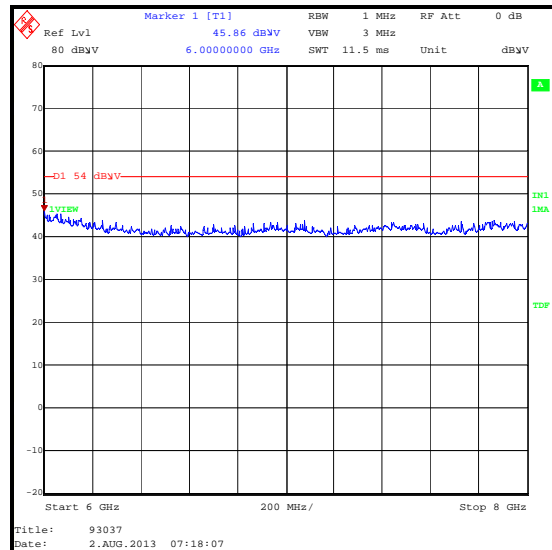
**Results: Top Channel / 256QAM / Sectorised Antenna**



**Restricted Band 4.5 GHz to 5.15 GHz**

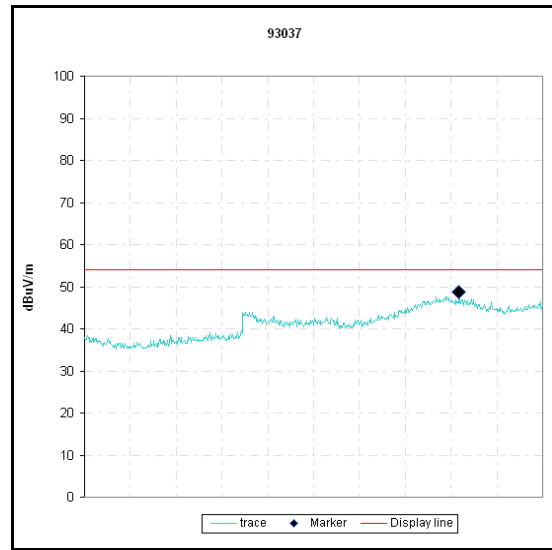
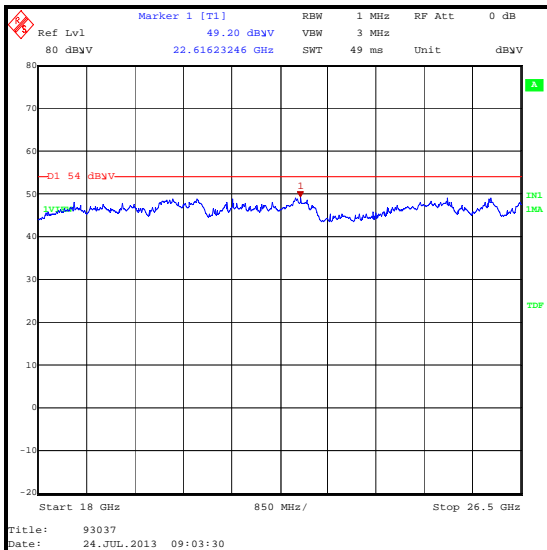
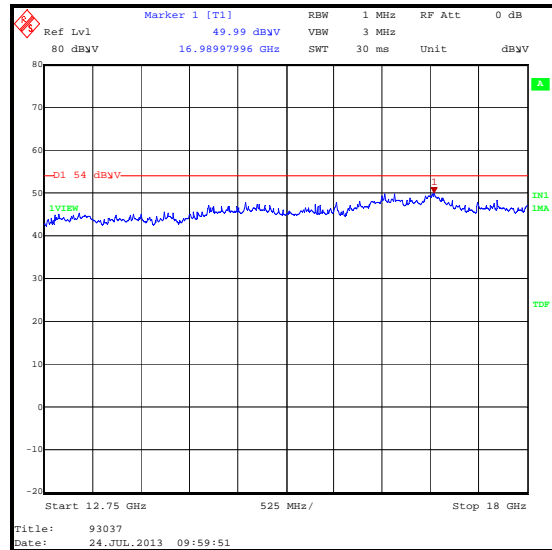
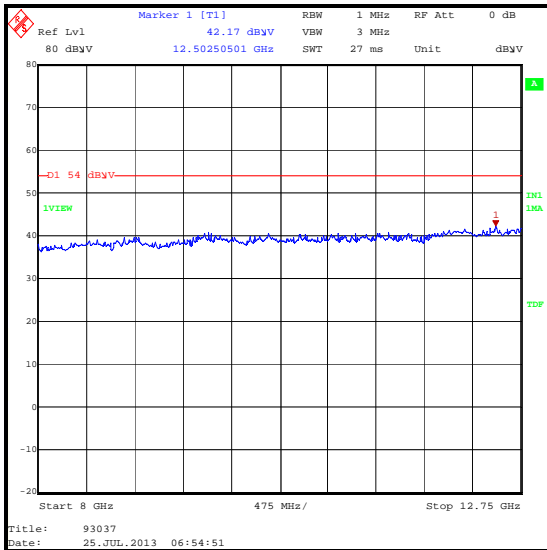


**Restricted Band 5.35 GHz to 5.46 GHz**



### Transmitter Out of Band Radiated Emissions (continued)

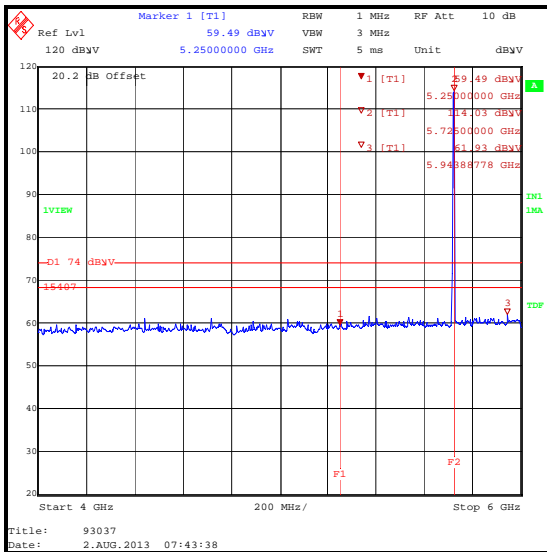
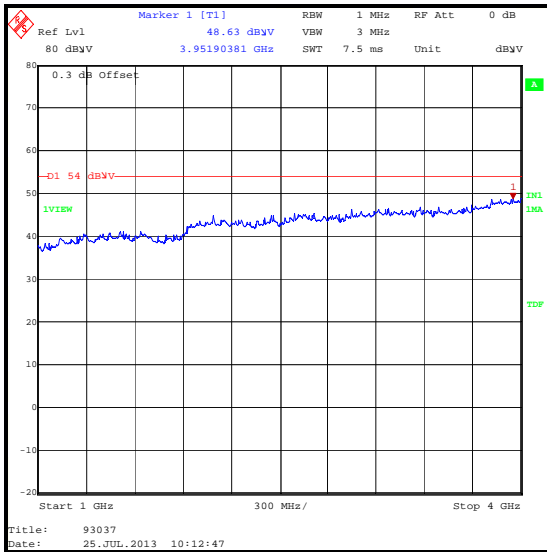
#### Results: Top Channel / 256QAM / Sectorised Antenna



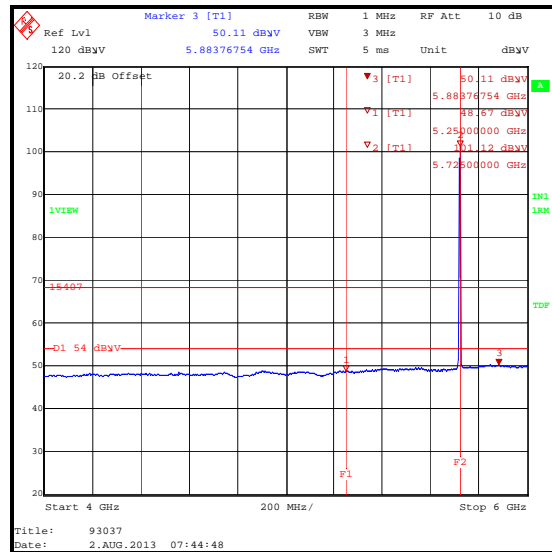
**Transmitter Out of Band Radiated Emissions (continued)**

**Results: Top Channel / 256QAM / Omnidirectional Antenna**

Frequency (MHz)	Antenna Polarity	Maximum Level (dBm)	Limit (dBm)	Margin (dB)	Result
5943.888	Horizontal	-33.3	-27.0	6.3	Complied



**Peak Detector**

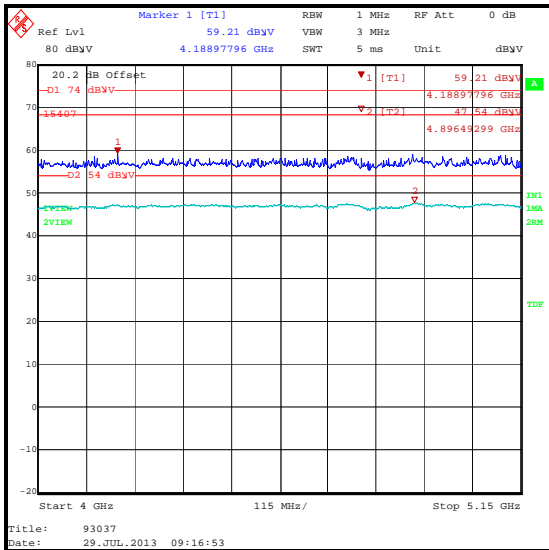


**Average Detector**

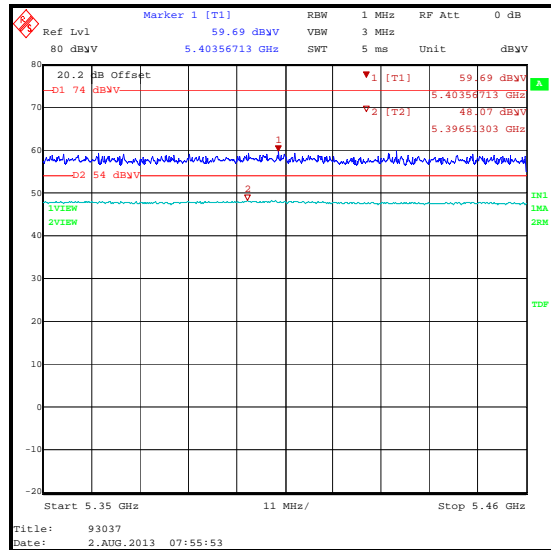


### Transmitter Out of Band Radiated Emissions (continued)

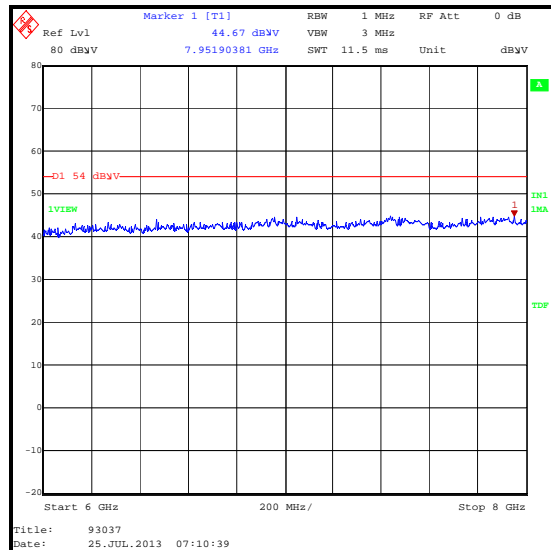
#### Results: Top Channel / 256QAM / Omnidirectional Antenna



Restricted Band 4.0 GHz to 5.15 GHz

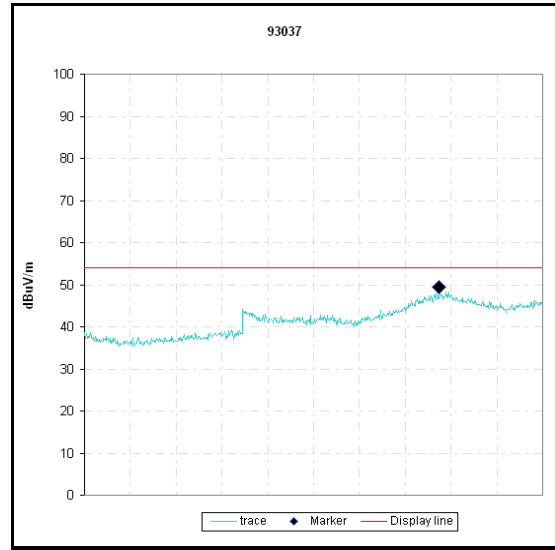
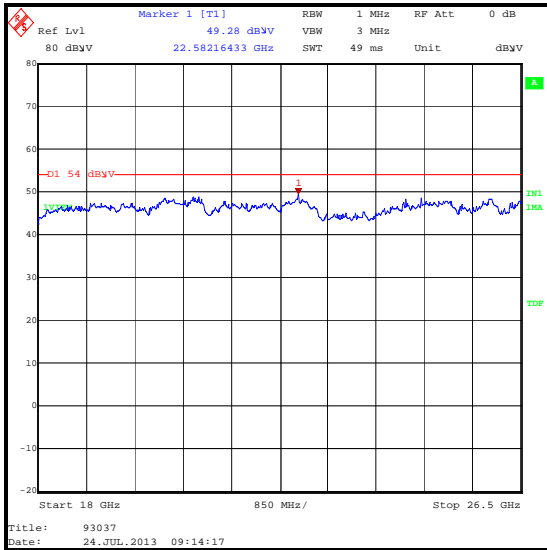
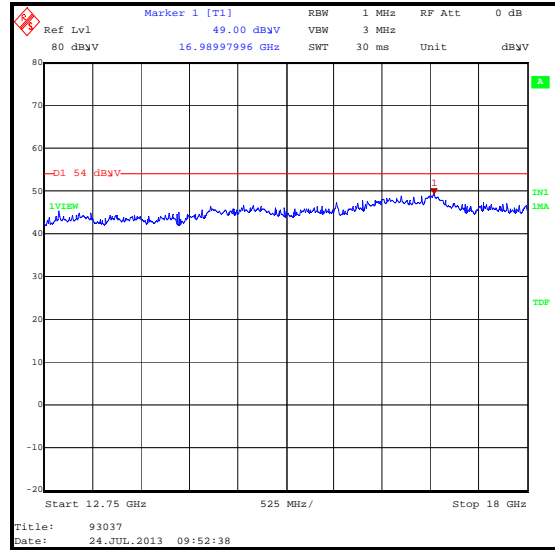
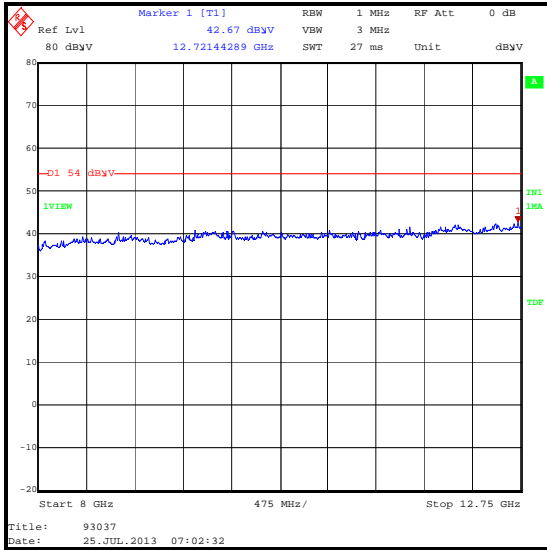


Restricted Band 5.35 GHz to 5.46 GHz



### Transmitter Out of Band Radiated Emissions (continued)

### Results: Top Channel / 256QAM / Omnidirectional Antenna



**Transmitter Radiated Emissions (continued)****Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
K0001	5m RSE Chamber	Rainford EMC	N/A	N/A	24 Oct 2013	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	04 Nov 2013	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	04 Nov 2013	12
M1021	Signal Generator	Rohde & Schwarz	SMP02	833286/004	05 Feb 2014	12
M1124	Test Receiver	Rohde & Schwarz	ESIB 26	100046K	14 Aug 2013	12
A2133	Low Pass Filter	AtlanTec RF	AFL-04000	JFB1006-002	26 Apr 2014	12
A1393	Attenuator	Huber & Suhner	6820.17.B	757456	10 May 2014	12
A1997	Attenuator	Huber & Suhner	6810.17.B	301749	06 Apr 2014	12
A1395	Attenuator	Huber & Suhner	6806.17.B	753459	10 May 2014	12
A1818	Antenna	EMCO	3115	00075692	04 Nov 2013	12
A253	Antenna	Flann Microwave	12240-20	128	04 Nov 2013	12
A254	Antenna	Flann Microwave	14240-20	139	04 Nov 2013	12
A255	Antenna	Flann Microwave	16240-20	519	04 Nov 2013	12
A256	Antenna	Flann Microwave	18240-20	400	04 Nov 2013	12
A436	Antenna	Flann Microwave	20249-20	330	04 Nov 2013	12
A203	Antenna	Flann Microwave	22240-20	343	19 May 2016	36
M1584	Spectrum Analyser	Hewlett Packard	8564E	3943A01884	05 Mar 2014	12
M1656	Thermohygrometer	JM Handelspunkt	30.5015.13	Not stated	24 May 2014	12

**5.2.7. Transmitter Band Edge Radiated Emissions****Test Summary:**

<b>Test Engineers:</b>	Ian Watch & David Doyle & Philip Harrison	<b>Test Dates:</b>	19 June 2013 to 30 July 2013
<b>Test Sample Serial Number:</b>	0004565000BD0		

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

**Environmental Conditions:**

<b>Temperature (°C):</b>	24 to 29
<b>Relative Humidity (%):</b>	31 to 48

**Note(s):**

- Band edge tests were performed as radiated measurements in the operating mode that produced the highest emission levels at band edges. All modes were initially tested and the mode that produced the highest levels was 256QAM. The EUT was transmitting with >99% duty cycle and at maximum power for bottom or top channel according to the antenna being used (refer to Section 4.2). All antennas types were tested. The EUT was connected to each antenna using the supplied RF cables.
- Lower band edge measurements were performed with the EUT transmitting on the bottom channel at maximum power. The lower band edge plots show a lower band edge frequency line at 5.25 GHz. A non-restricted band of operation exists below the lower band edge and the general limit of -27 dBm/MHz E.I.R.P. applies. The test was performed as a field strength measurement and the -27 dBm E.I.R.P. limit converted to a field strength limit of 68.2 dB $\mu$ V/m at 3 metres in accordance with FCC KDB 789033 H)2)d(i) using a conversion factor of 95.2. This limit line is marked on the plots as "15407". A peak detector was used (worst case).
- Upper band edge measurements were performed with the EUT transmitting on the top channel. The upper band edge plots show an upper band edge frequency line at 5.35 GHz. A restricted band of operation exists from the upper band edge to 5.46 GHz. Restricted band 74 dB $\mu$ V/m peak limit and 54 dB $\mu$ V/m average limits apply.

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Parabolic Antenna / 5 MHz Channel / 256QAM / Peak**

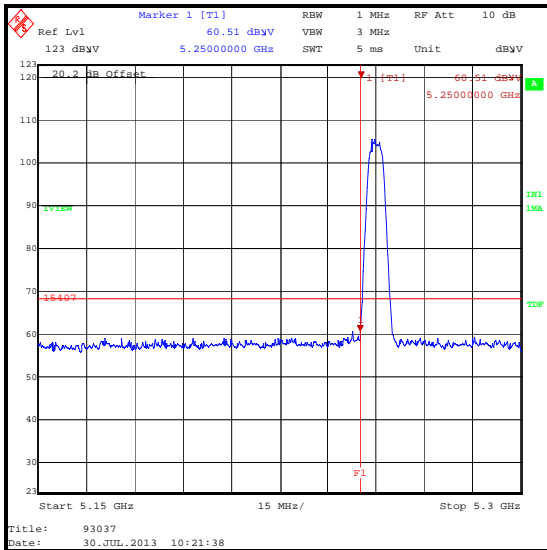
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5250	60.5	68.2	7.7	Complied
5350	64.5	74.0	9.5	Complied

**Results: Parabolic Antenna / 5 MHz Channel / 256QAM / Average**

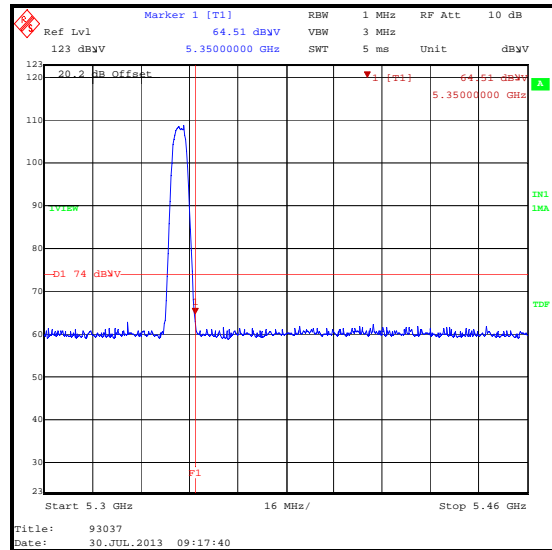
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	52.3	54.0	1.7	Complied

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

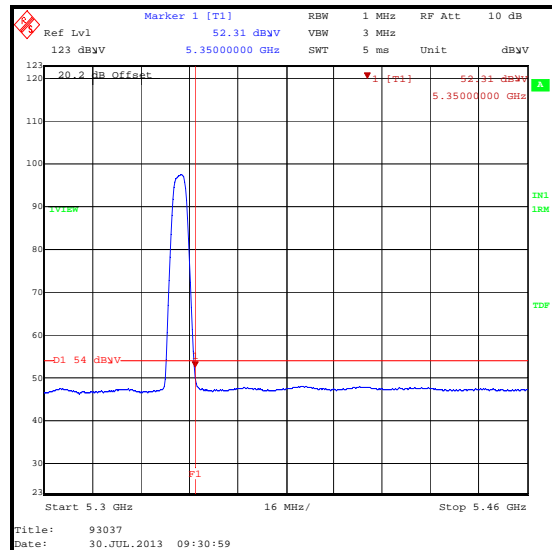
**Results: Parabolic Antenna / 5 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Parabolic Antenna / 10 MHz Channel / 256QAM / Peak**

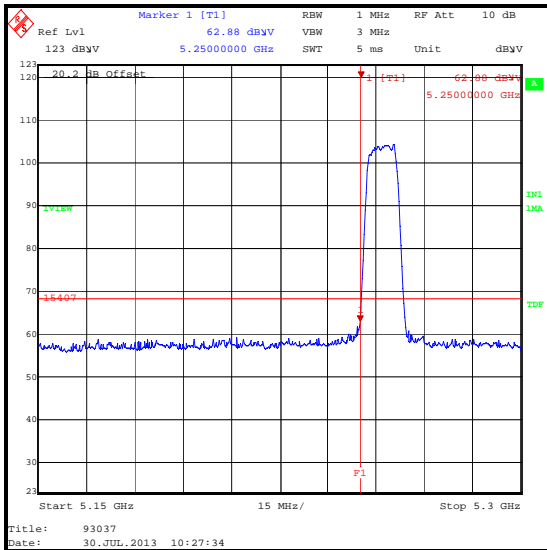
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5250	62.9	68.2	5.3	Complied
5350	64.4	74.0	9.6	Complied

**Results: Parabolic Antenna / 10 MHz Channel / 256QAM / Average**

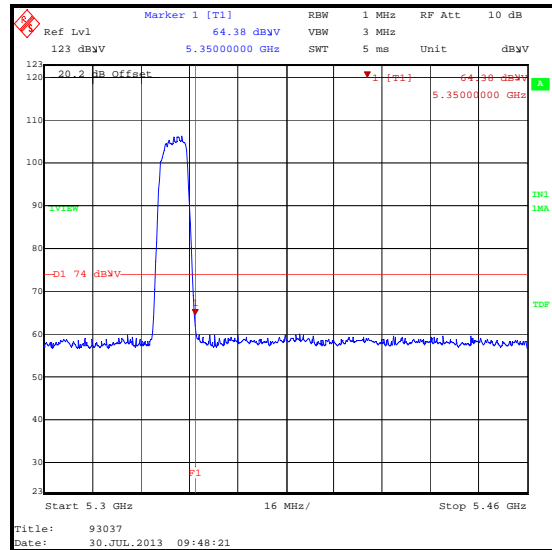
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	53.8	54.0	0.2	Complied

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

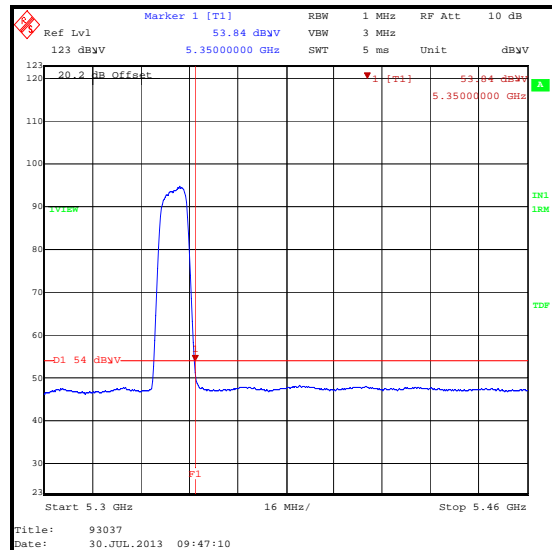
**Results: Parabolic Antenna / 10 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**



**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Parabolic Antenna / 15 MHz Channel / 256QAM / Peak**

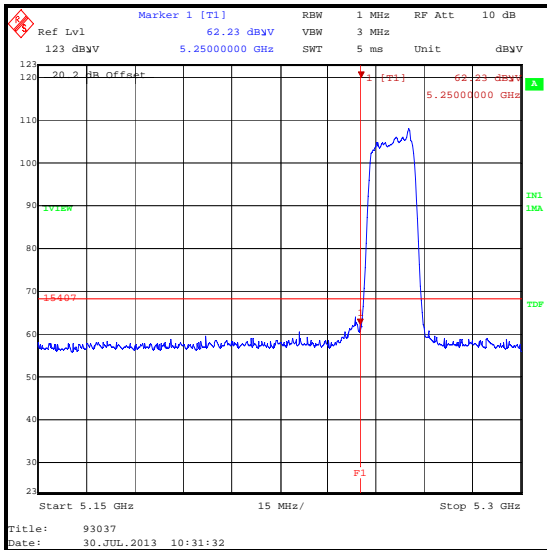
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5250	62.2	68.2	6.0	Complied
5350	62.4	74.0	11.6	Complied

**Results: Parabolic Antenna / 15 MHz Channel / 256QAM / Average**

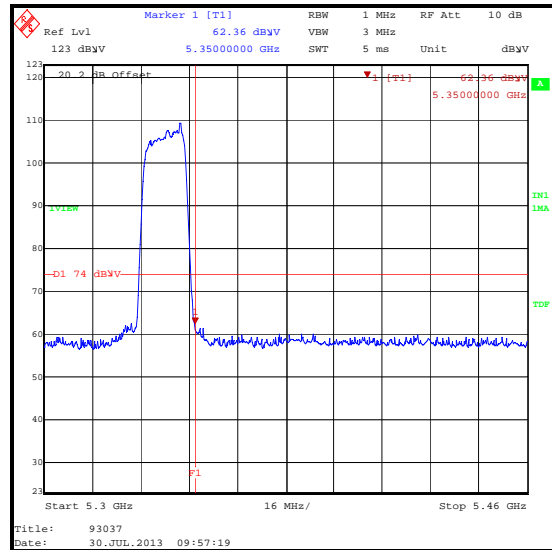
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	50.1	54.0	3.9	Complied

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

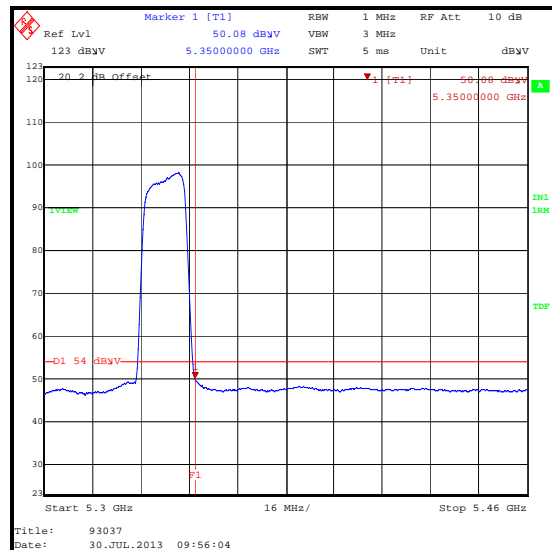
**Results: Parabolic Antenna / 15 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Parabolic Antenna / 20 MHz Channel / 256QAM / Peak**

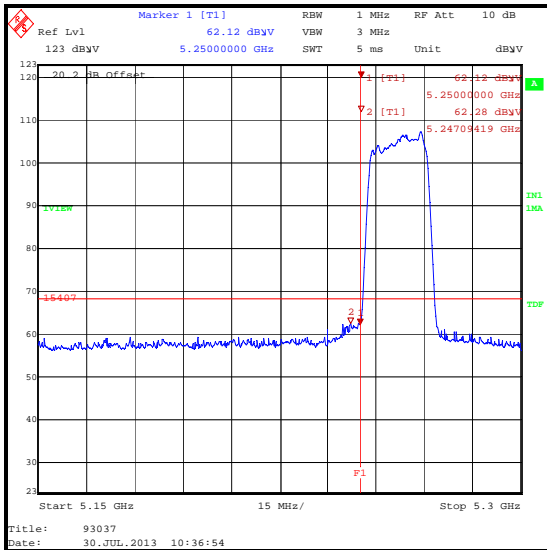
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5247.094	62.3	68.2	5.9	Complied
5250	62.1	68.2	6.1	Complied
5350	62.3	74.0	11.7	Complied

**Results: Parabolic Antenna / 20 MHz Channel / 256QAM / Average**

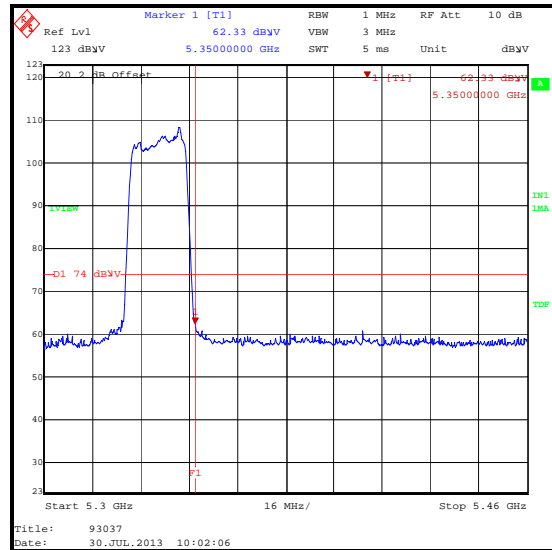
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	51.7	54.0	2.3	Complied

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

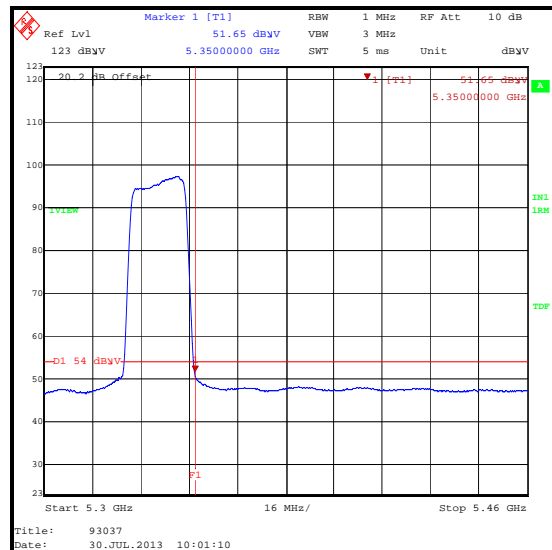
**Results: Parabolic Antenna / 20 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Parabolic Antenna / 30 MHz Channel / 256QAM / Peak**

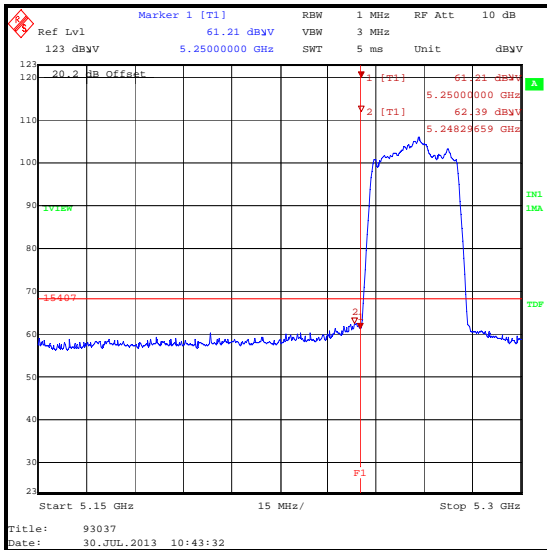
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5248.297	62.4	68.2	5.8	Complied
5250	61.2	68.2	7.0	Complied
5350	61.9	74.0	12.1	Complied

**Results: Parabolic Antenna / 30 MHz Channel / 256QAM / Average**

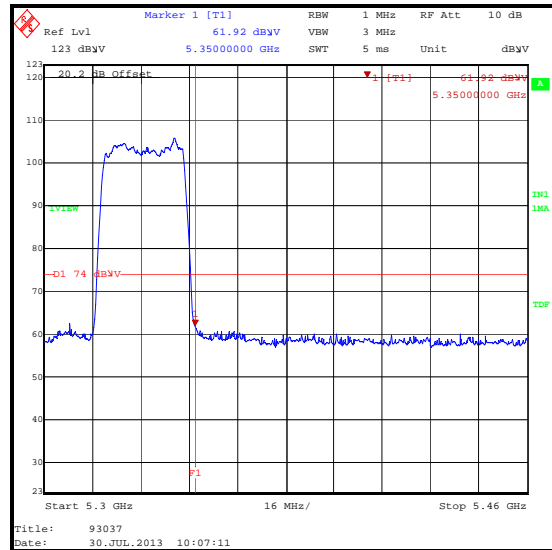
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	50.2	54.0	3.8	Complied

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

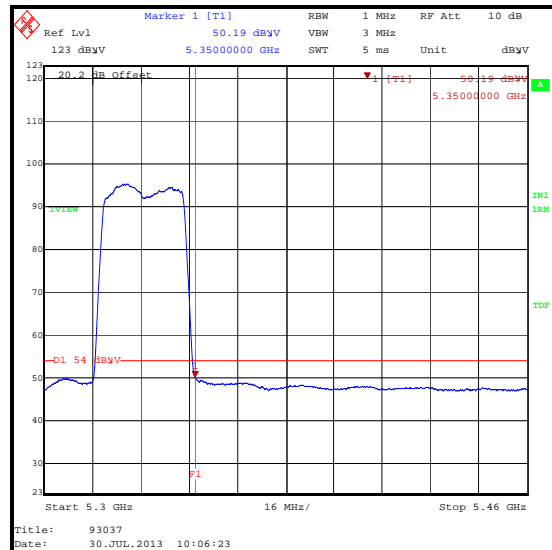
**Results: Parabolic Antenna / 30 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Parabolic Antenna / 40 MHz Channel / 256QAM / Peak**

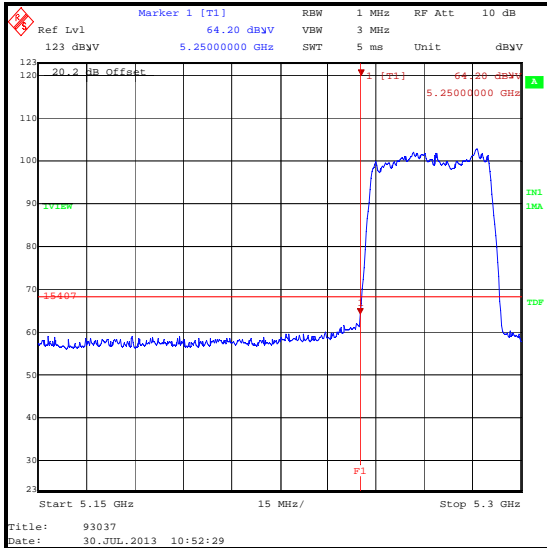
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5250	64.2	68.2	4.0	Complied
5350	64.2	74.0	9.8	Complied

**Results: Parabolic Antenna / 40 MHz Channel / 256QAM / Average**

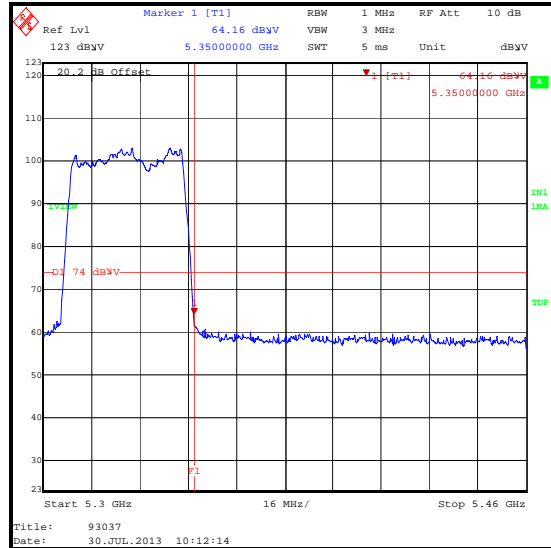
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	52.9	54.0	1.1	Complied

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

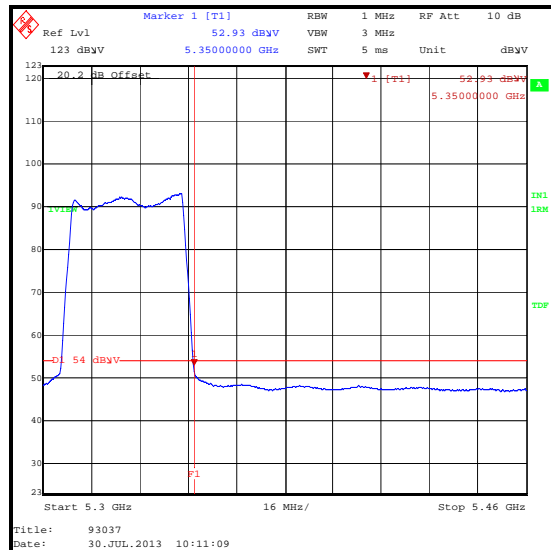
**Results: Parabolic Antenna / 40 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**



**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Parabolic Antenna / 45 MHz Channel / 256QAM / Peak**

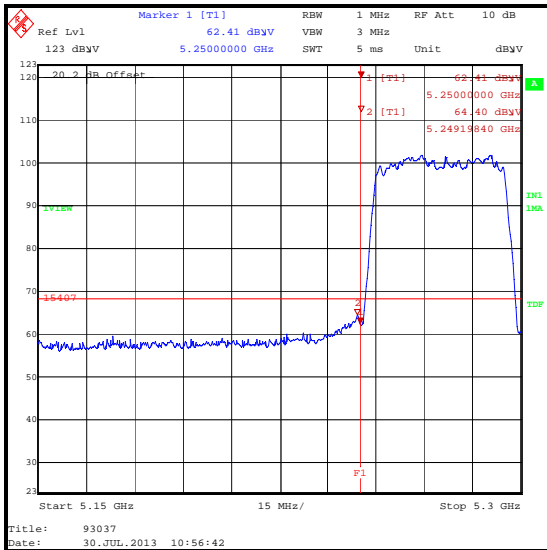
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5249.198	64.4	68.2	3.8	Complied
5250	62.4	68.2	5.8	Complied
5350	62.8	74.0	11.2	Complied

**Results: Parabolic Antenna / 45 MHz Channel / 256QAM / Average**

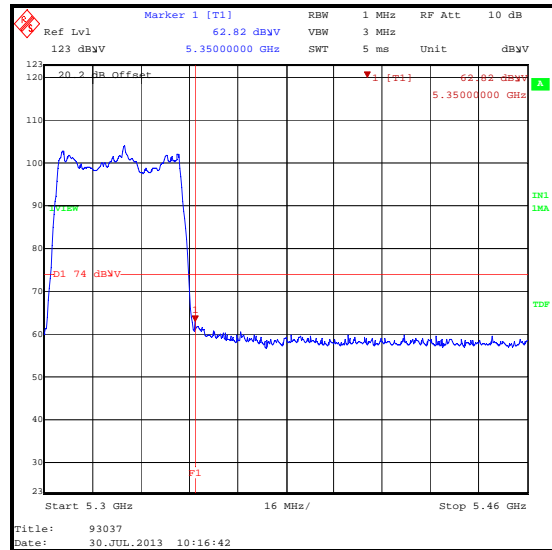
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	51.0	54.0	3.0	Complied

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

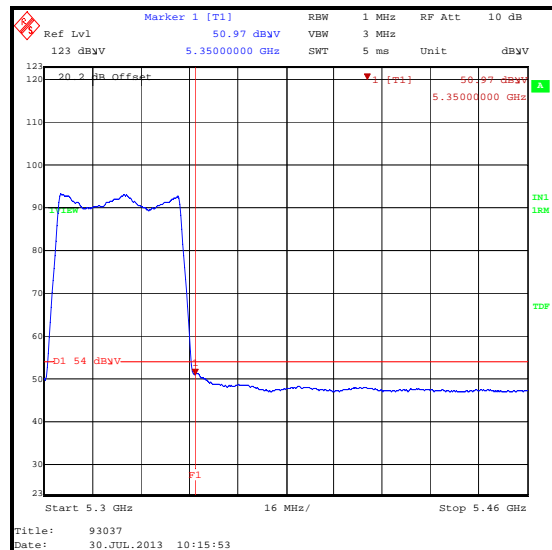
**Results: Parabolic Antenna / 45 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Plate Antenna / 5 MHz Channel / 256QAM / Peak**

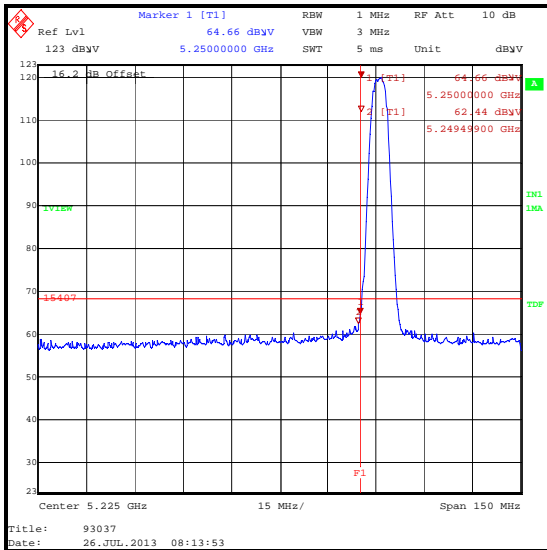
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5250	64.7	68.2	3.5	Complied
5350	62.2	74.0	11.8	Complied

**Results: Plate Antenna / 5 MHz Channel / 256QAM / Average**

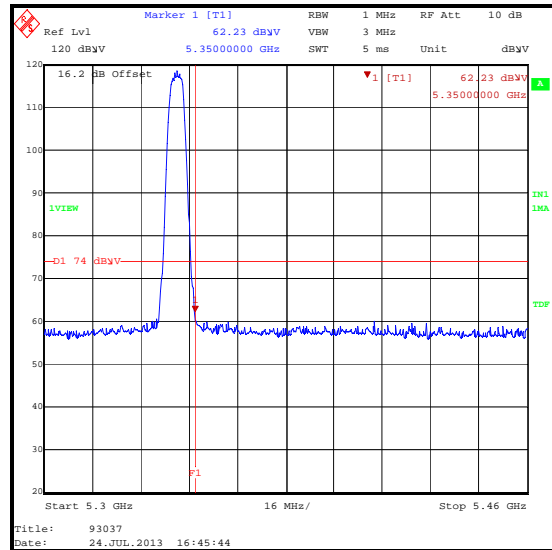
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	51.3	54.0	2.7	Complied
5383.687	49.0	54.0	5.0	Complied

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

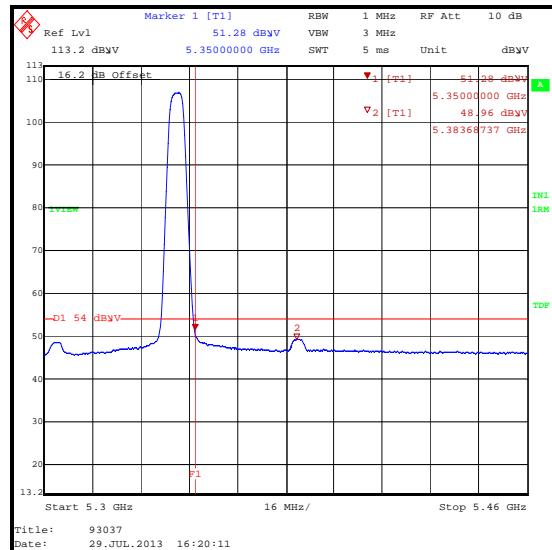
**Results: Plate Antenna / 5 MHz Channel / 256QAM**



Lower Band Edge / Peak



Upper Band Edge / Peak



Upper Band Edge / Average

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Plate Antenna / 10 MHz Channel / 256QAM / Peak**

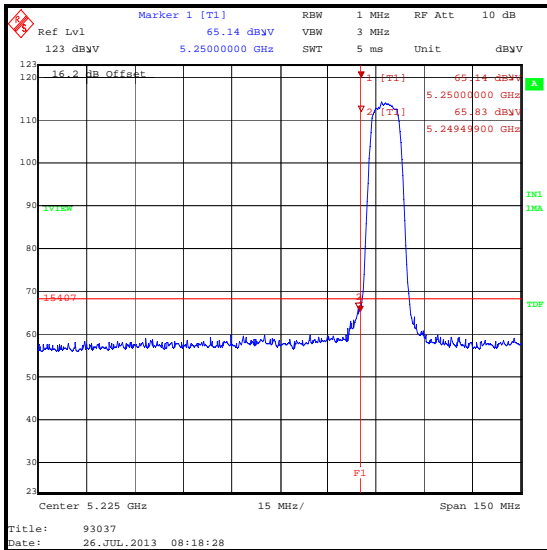
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5249.499	65.8	68.2	2.4	Complied
5250	65.1	68.2	3.1	Complied
5350	61.1	74.0	13.9	Complied

**Results: Plate Antenna / 10 MHz Channel / 256QAM / Average**

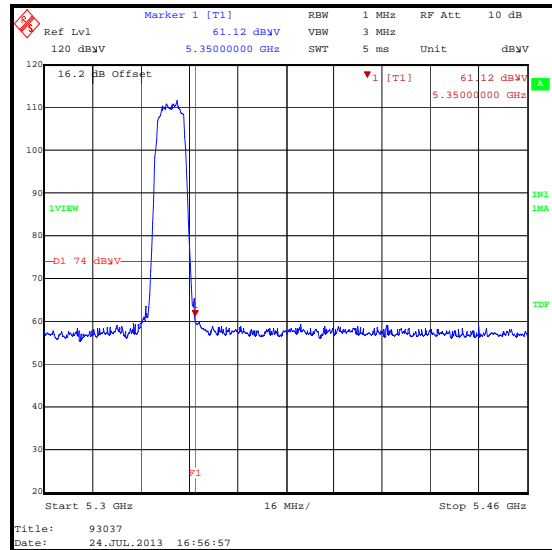
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	53.1	54.0	0.9	Complied

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

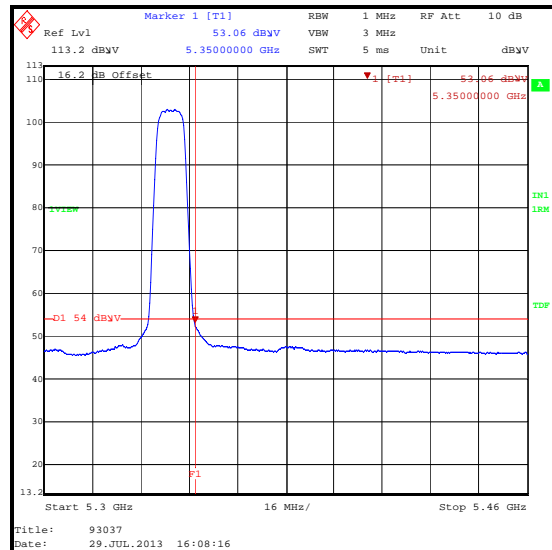
**Results: Plate Antenna / 10 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Plate Antenna / 15 MHz Channel / 256QAM / Peak**

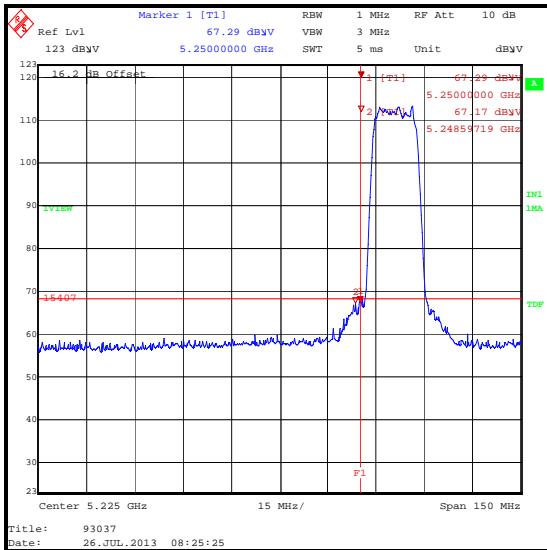
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5250	67.3	68.2	0.9	Complied
5350	62.7	74.0	11.3	Complied

**Results: Plate Antenna / 15 MHz Channel / 256QAM / Average**

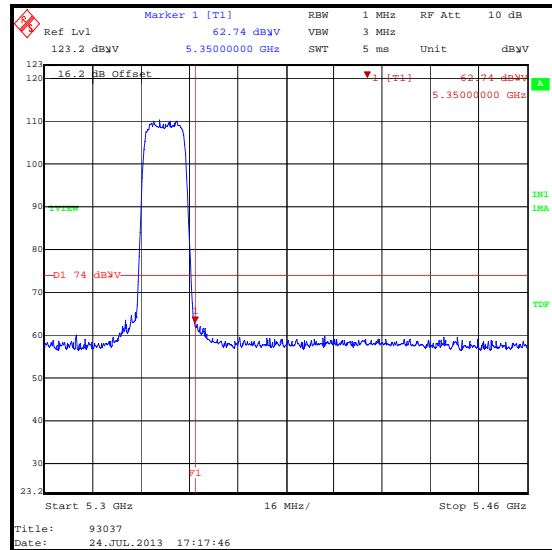
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	52.8	54.0	1.2	Complied

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

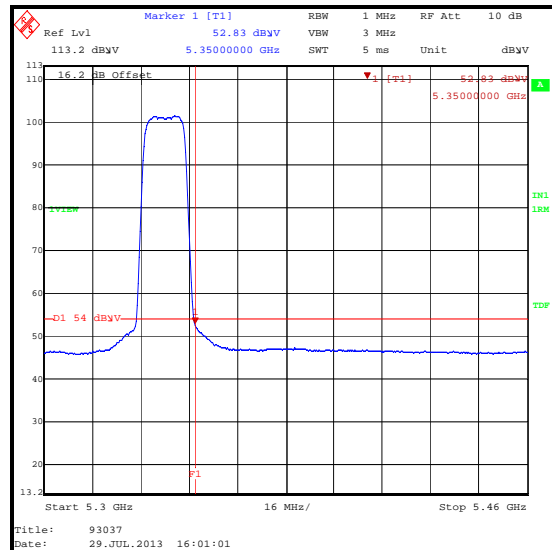
**Results: Plate Antenna / 15 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**



**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Plate Antenna / 20 MHz Channel / 256QAM / Peak**

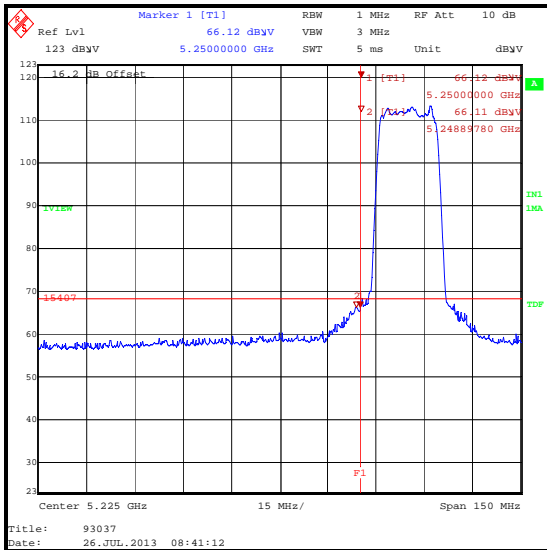
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5250	66.1	68.2	2.1	Complied
5350	62.4	74.0	11.6	Complied

**Results: Plate Antenna / 20 MHz Channel / 256QAM / Average**

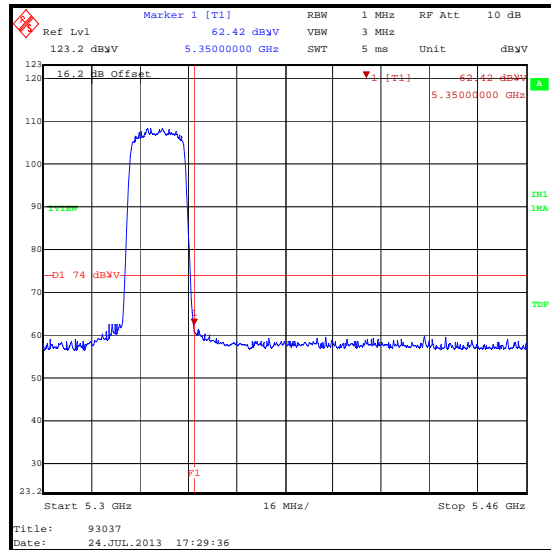
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	53.6	54.0	0.4	Complied

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

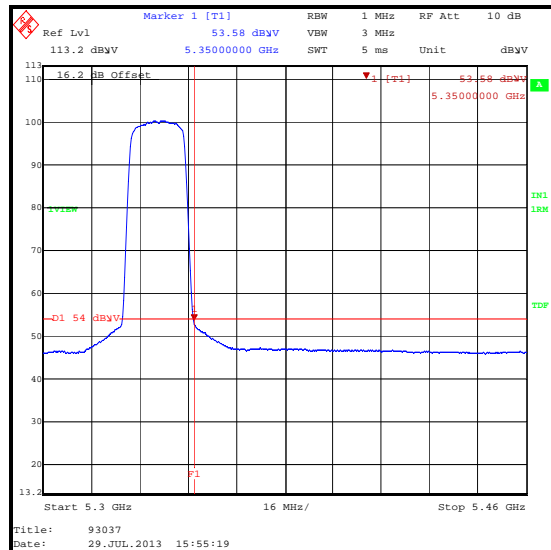
**Results: Plate Antenna / 20 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Plate Antenna / 30 MHz Channel / 256QAM / Peak**

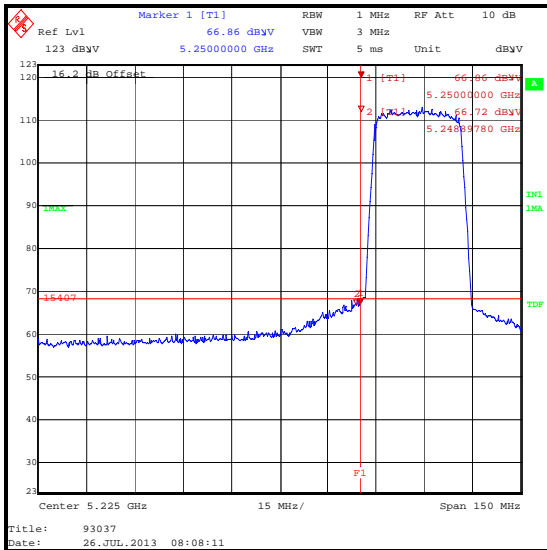
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5250	66.9	68.2	1.3	Complied
5350	61.1	74.0	12.9	Complied
5352.586	62.4	74.0	11.6	Complied

**Results: Plate Antenna / 30 MHz Channel / 256QAM / Average**

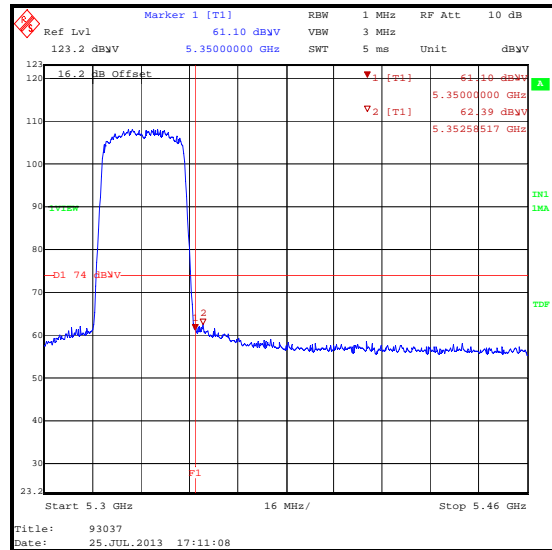
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	53.3	54.0	0.7	Complied

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

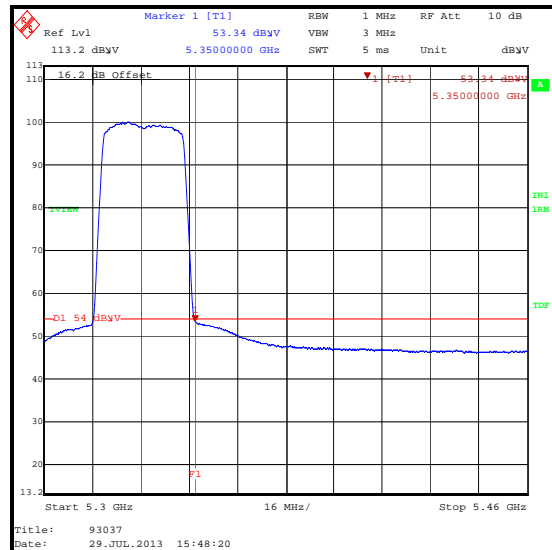
**Results: Plate Antenna / 30 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Plate Antenna / 40 MHz Channel / 256QAM / Peak**

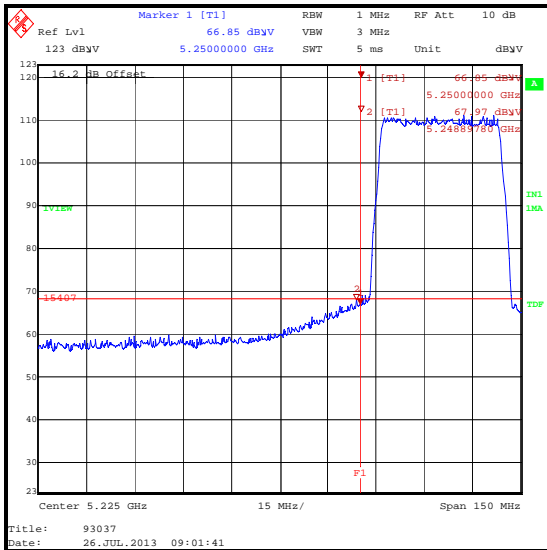
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5248.898	68.0	68.2	0.2	Complied
5250	66.9	68.2	1.3	Complied
5350	63.3	74.0	10.7	Complied

**Results: Plate Antenna / 40 MHz Channel / 256QAM / Average**

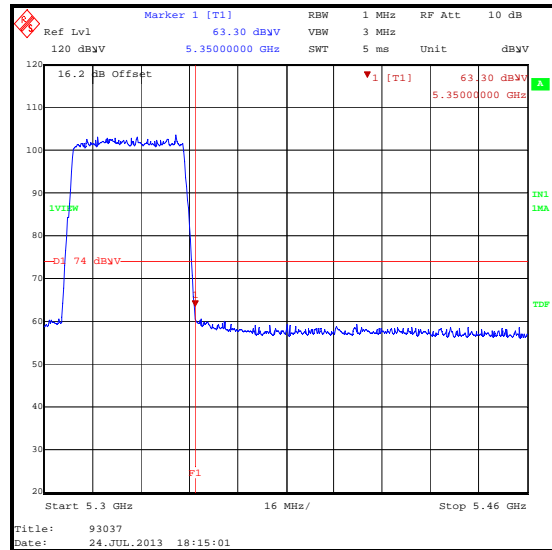
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	53.5	54.0	0.5	Complied

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

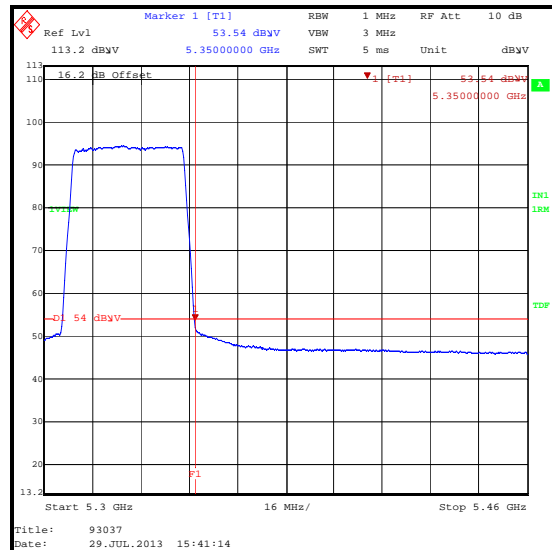
**Results: Plate Antenna / 40 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Plate Antenna / 45 MHz Channel / 256QAM / Peak**

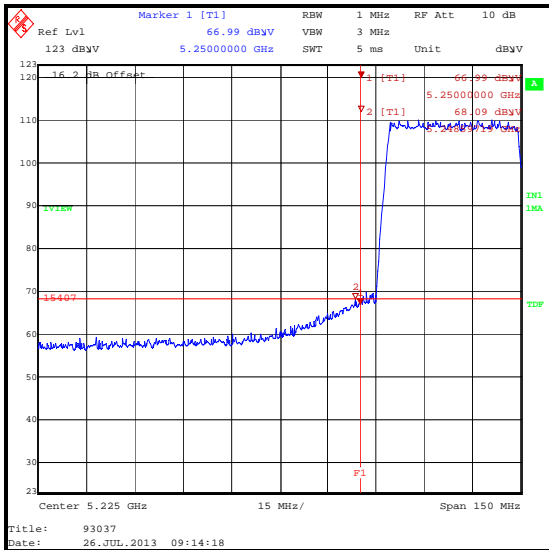
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5248.597	68.1	68.2	0.1	Complied
5250	67.0	68.2	1.2	Complied
5350	61.8	74.0	12.2	Complied

**Results: Plate Antenna / 45 MHz Channel / 256QAM / Average**

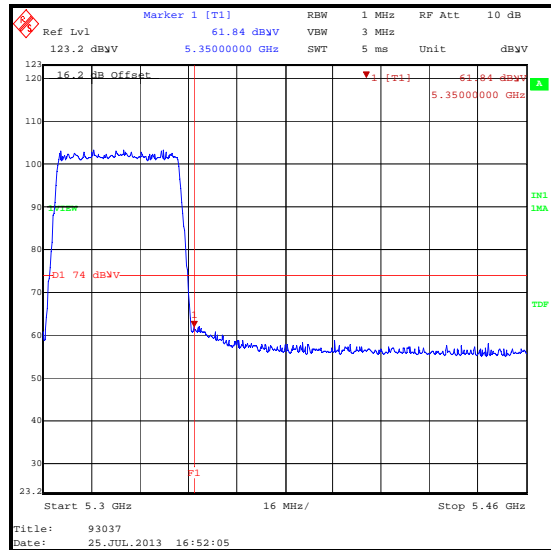
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	52.3	54.0	1.7	Complied

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

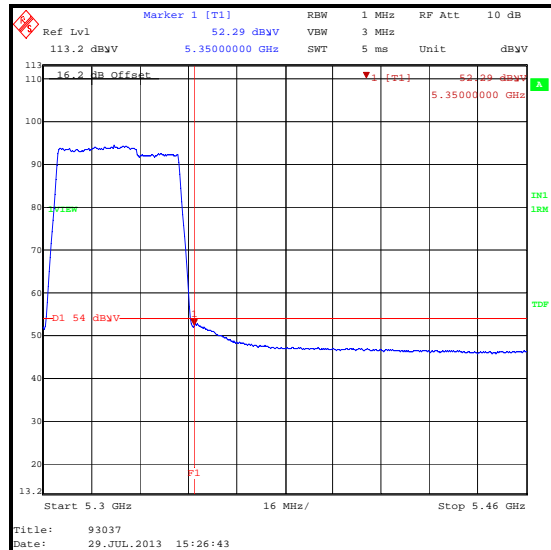
**Results: Plate Antenna / 45 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**



**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Sectorised Antenna / 5 MHz Channel / 256QAM / Peak**

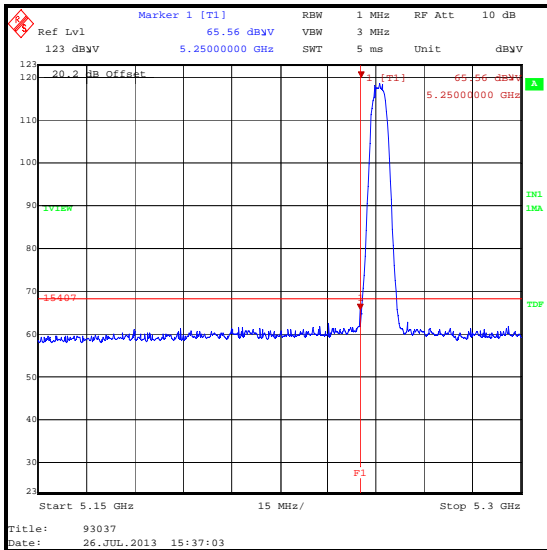
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5250	65.6	68.2	2.6	Complied
5350	66.8	74.0	7.2	Complied

**Results: Sectorised Antenna / 5 MHz Channel / 256QAM / Average**

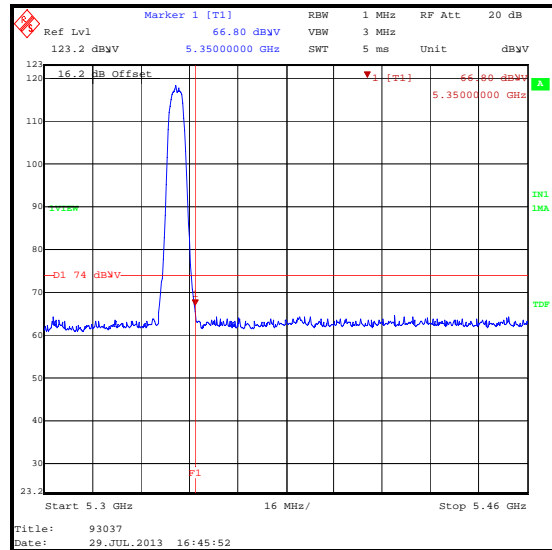
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	50.2	54.0	3.8	Complied
5382.725	48.0	54.0	6.0	Complied

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

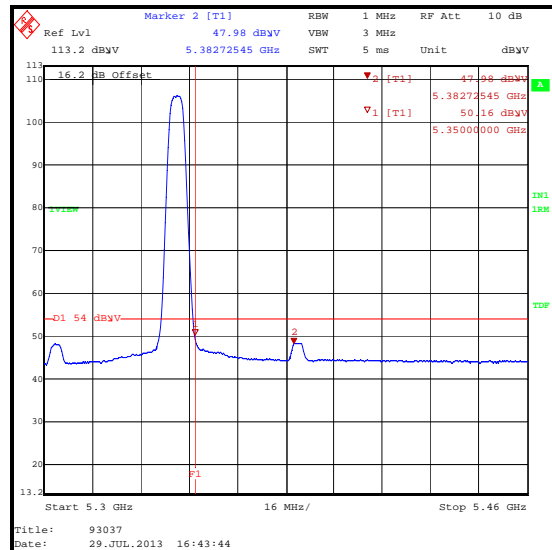
**Results: Sectorised Antenna / 5 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Sectorised Antenna / 10 MHz Channel / 256QAM / Peak**

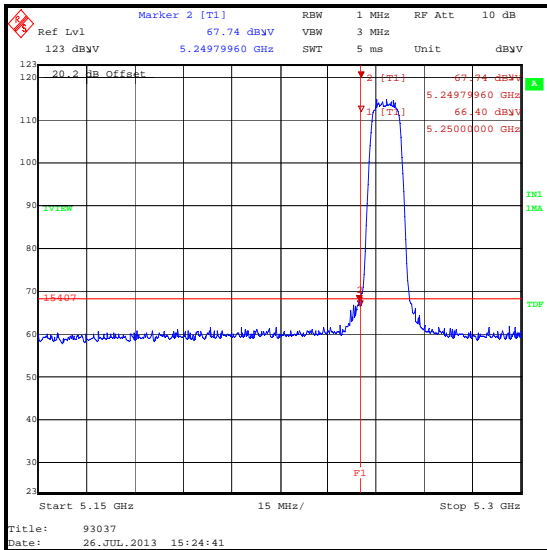
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5249.800	67.7	68.2	0.5	Complied
5250	66.4	68.2	1.8	Complied
5350	68.0	74.0	6.0	Complied

**Results: Sectorised Antenna / 10 MHz Channel / 256QAM / Average**

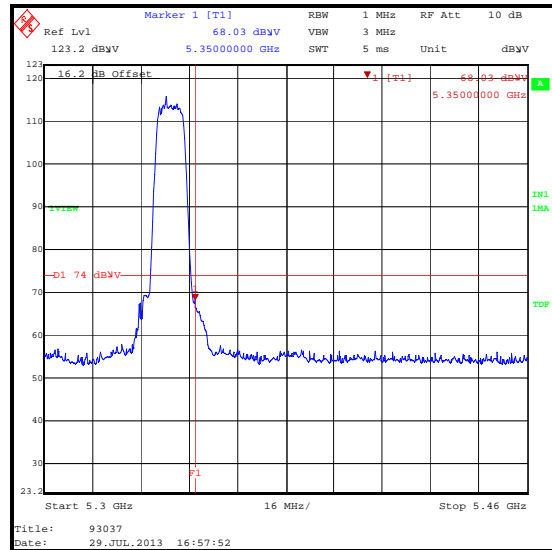
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	53.7	54.0	0.7	Complied

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

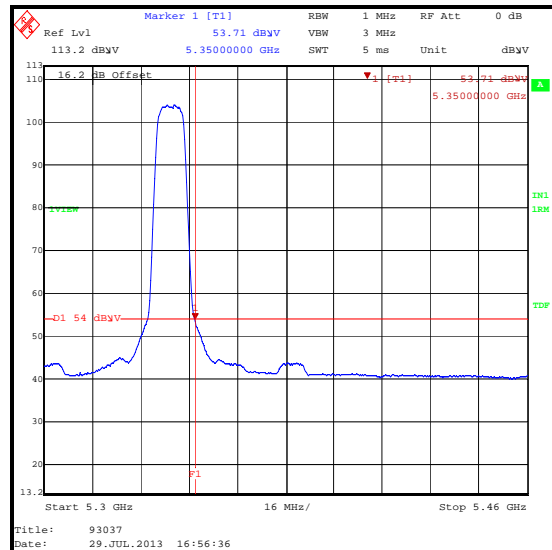
**Results: Sectorised Antenna / 10 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Sectorised Antenna / 15 MHz Channel / 256QAM / Peak**

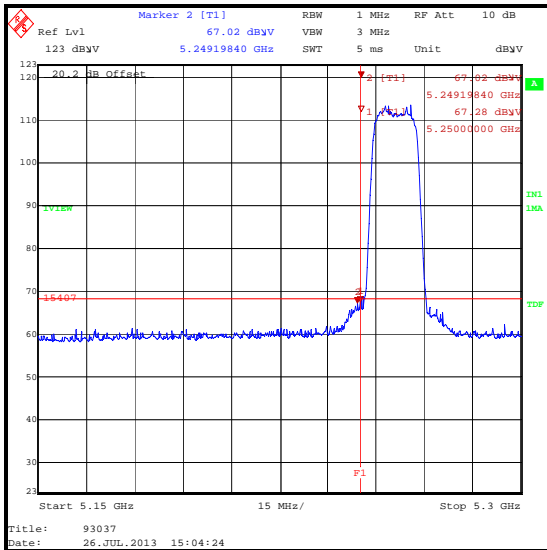
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5250	67.3	68.2	0.9	Complied
5350	67.0	74.0	7.0	Complied

**Results: Sectorised Antenna / 15 MHz Channel / 256QAM / Average**

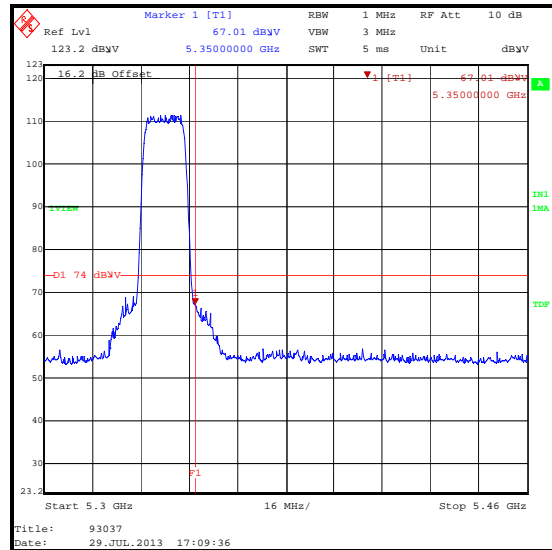
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	53.3	54.0	0.7	Complied

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

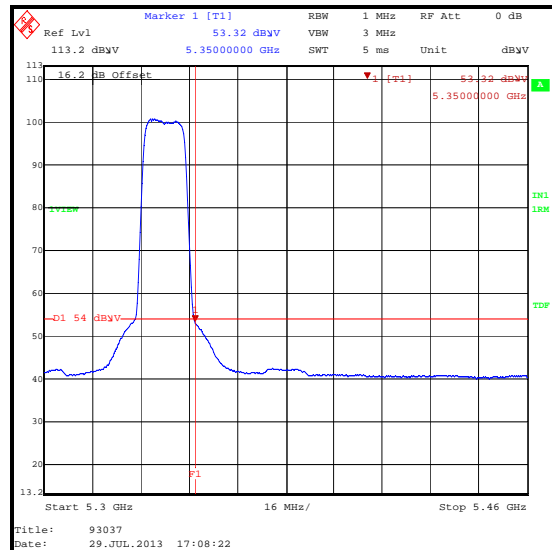
**Results: Sectorised Antenna / 15 MHz Channel / 256QAM**



Lower Band Edge / Peak



Upper Band Edge / Peak



Upper Band Edge / Average

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Sectorised Antenna / 20 MHz Channel / 256QAM / Peak**

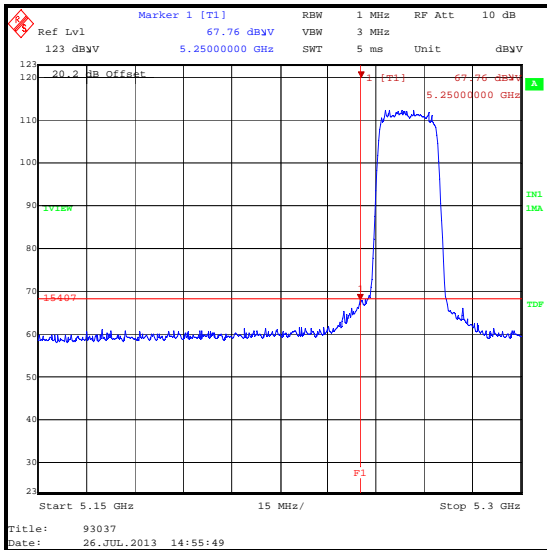
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5250	67.8	68.2	0.4	Complied
5350	67.5	74.0	6.5	Complied

**Results: Sectorised Antenna / 20 MHz Channel / 256QAM / Average**

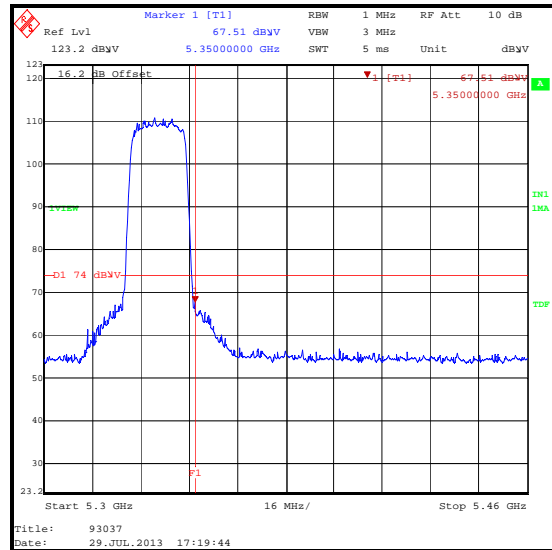
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	53.3	54.0	0.7	Complied

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

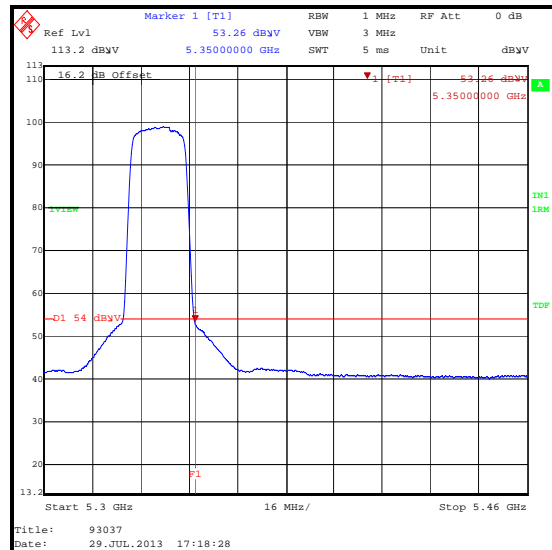
**Results: Sectorised Antenna / 20 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**



**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Sectorised Antenna / 30 MHz Channel / 256QAM / Peak**

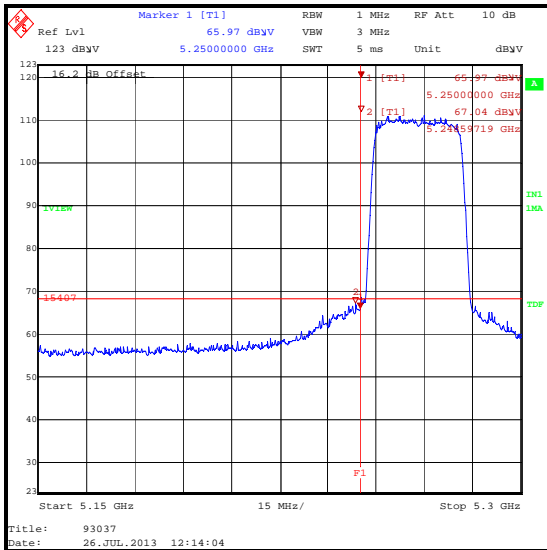
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5248.597	67.0	68.2	1.2	Complied
5250	66.0	68.2	2.2	Complied
5350	64.4	74.0	9.6	Complied
5350.341	66.3	74.0	7.7	Complied

**Results: Sectorised Antenna / 30 MHz Channel / 256QAM / Average**

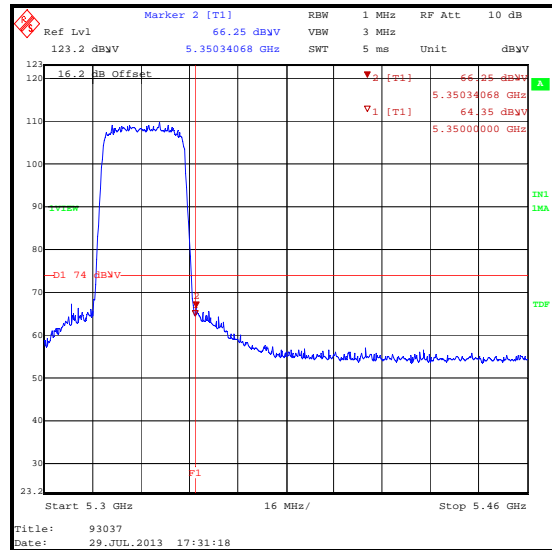
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	53.3	54.0	0.7	Complied

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

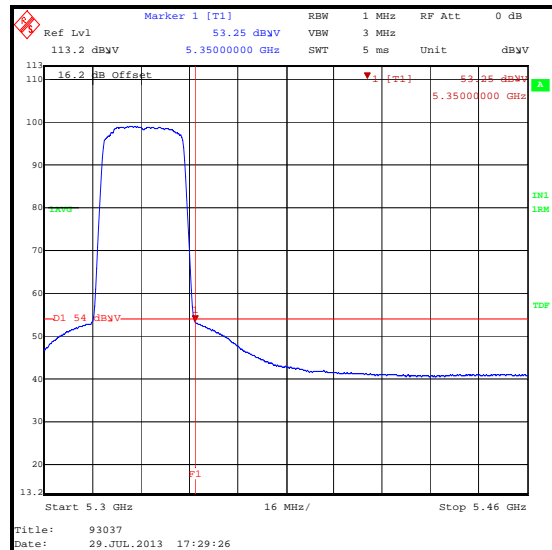
**Results: Sectorised Antenna / 30 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Sectorised Antenna / 40 MHz Channel / 256QAM / Peak**

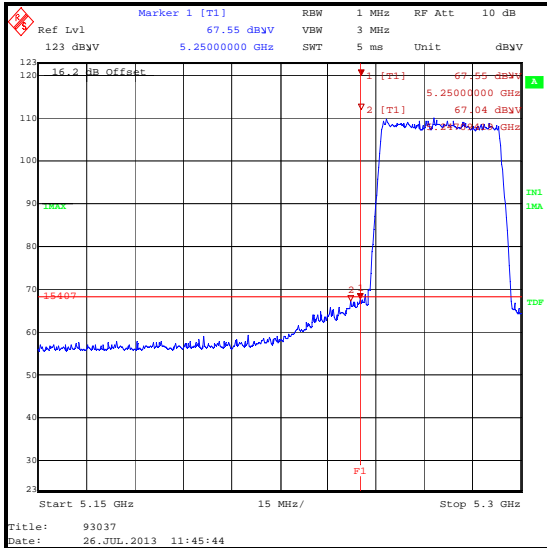
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5250	67.6	68.2	0.6	Complied
5350	63.3	74.0	10.7	Complied

**Results: Sectorised Antenna / 40 MHz Channel / 256QAM / Average**

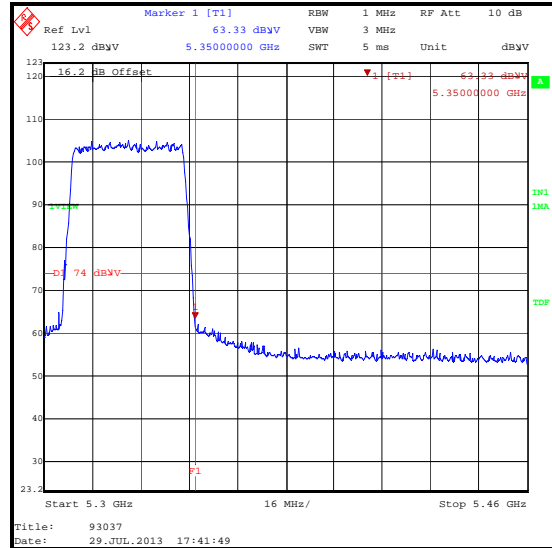
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	53.3	54.0	0.7	Complied

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

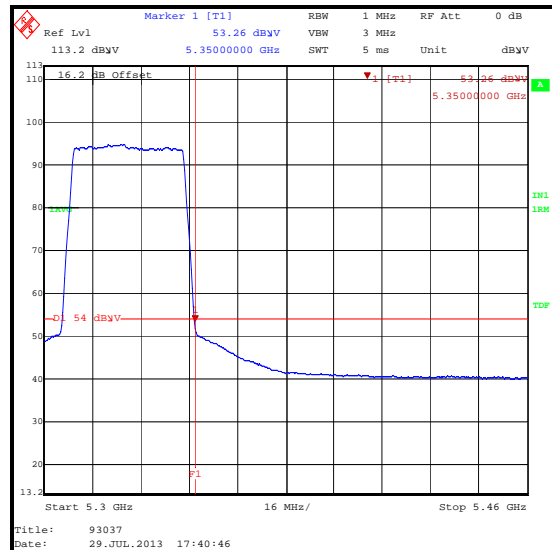
**Results: Sectorised Antenna / 40 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Sectorised Antenna / 45 MHz Channel / 256QAM / Peak**

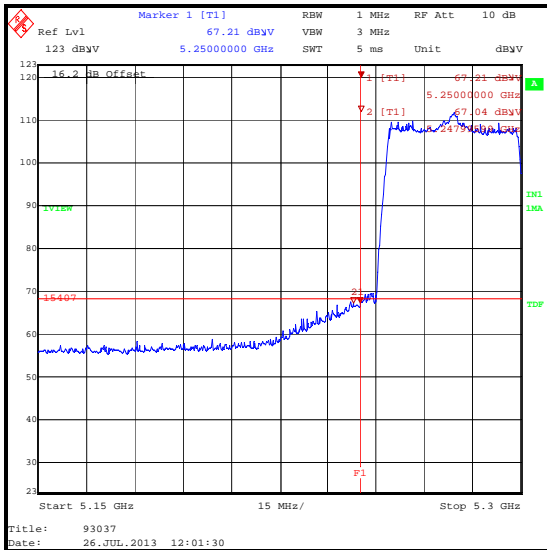
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5250	67.2	68.2	1.0	Complied
5350	63.8	74.0	10.2	Complied

**Results: Sectorised Antenna / 45 MHz Channel / 256QAM / Average**

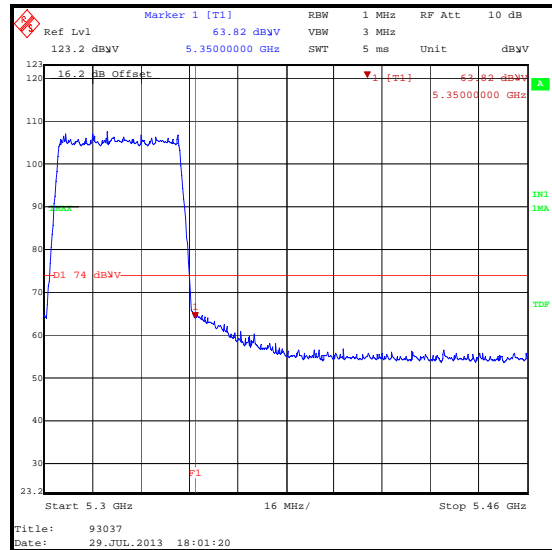
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	53.5	54.0	0.5	Complied

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

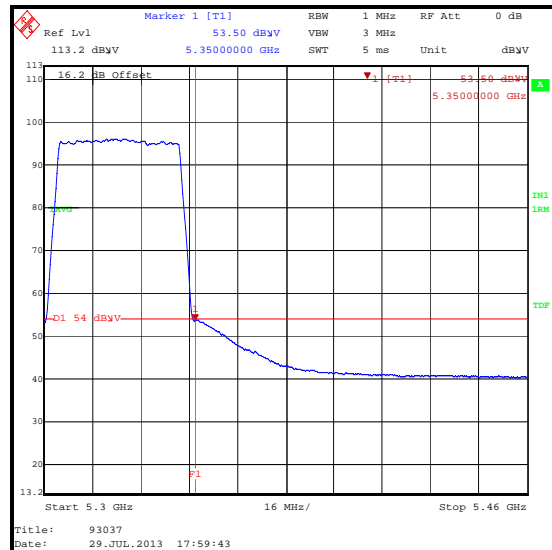
**Results: Sectorised Antenna / 45 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Omnidirectional Antenna / 5 MHz Channel / 256QAM / Peak**

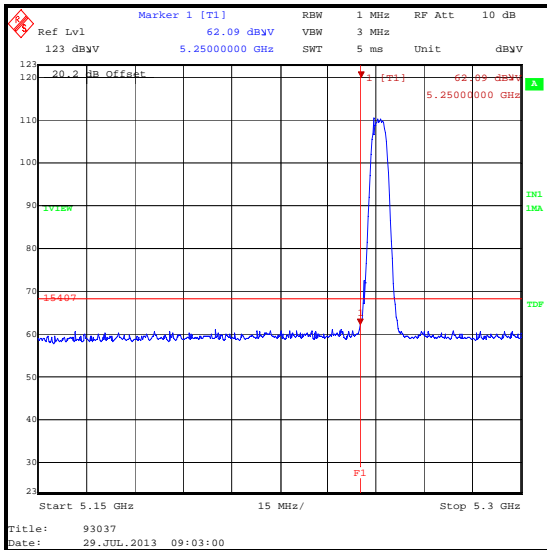
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5250	62.1	68.2	6.1	Complied
5350	64.7	74.0	9.3	Complied

**Results: Omnidirectional Antenna / 5 MHz Channel / 256QAM / Average**

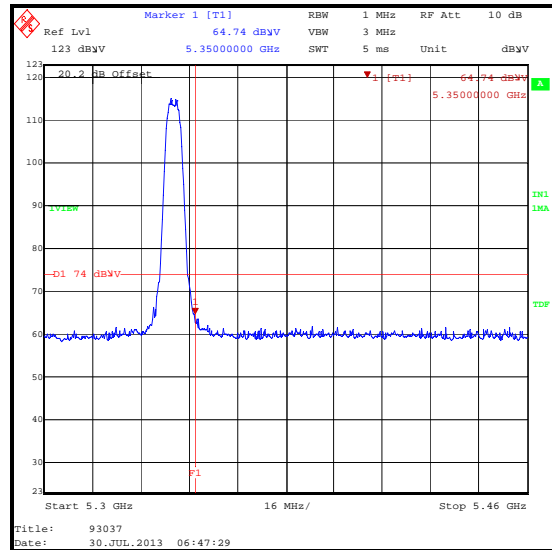
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	50.9	54.0	3.1	Complied

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

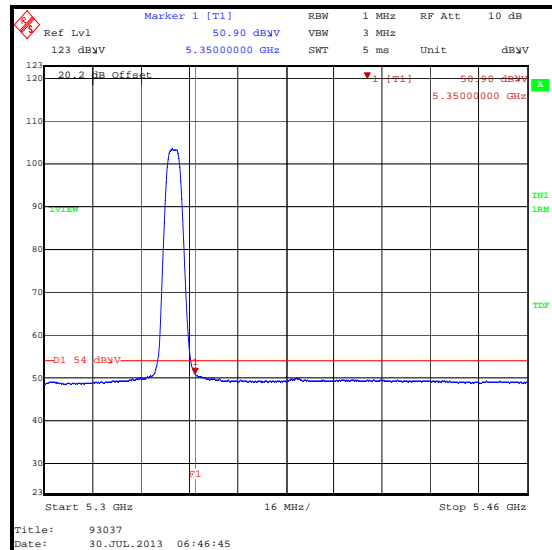
**Results: Omnidirectional Antenna / 5 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**



**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Omnidirectional Antenna / 10 MHz Channel / 256QAM / Peak**

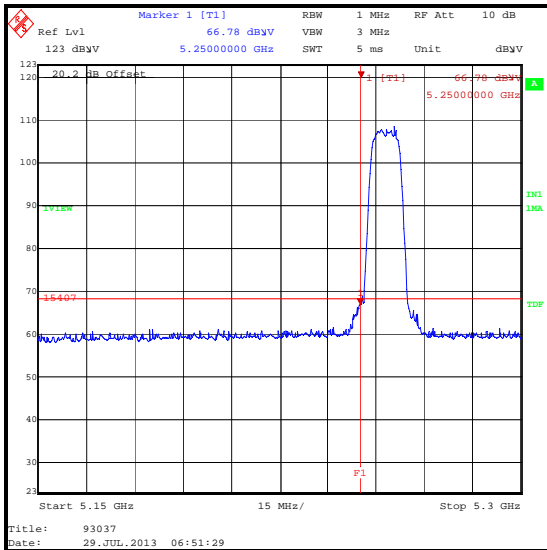
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5250	66.8	68.2	1.4	Complied
5350	64.2	74.0	9.8	Complied

**Results: Omnidirectional Antenna / 10 MHz Channel / 256QAM / Average**

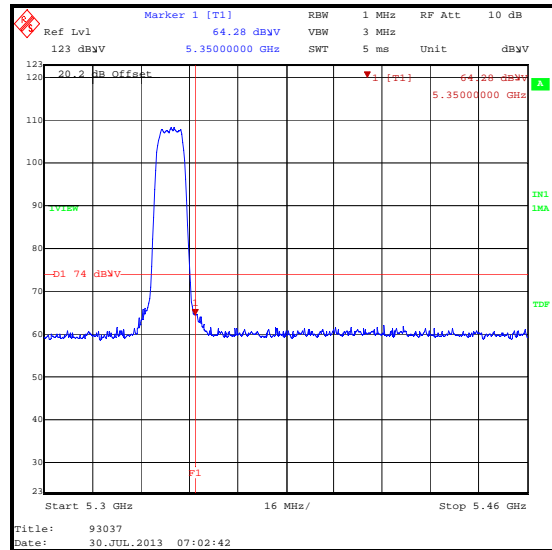
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	51.6	54.0	2.4	Complied

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

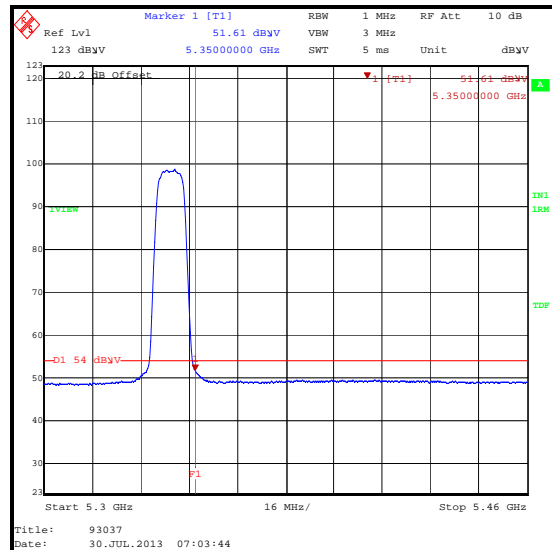
**Results: Omnidirectional Antenna / 10 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Omnidirectional Antenna / 15 MHz Channel / 256QAM / Peak**

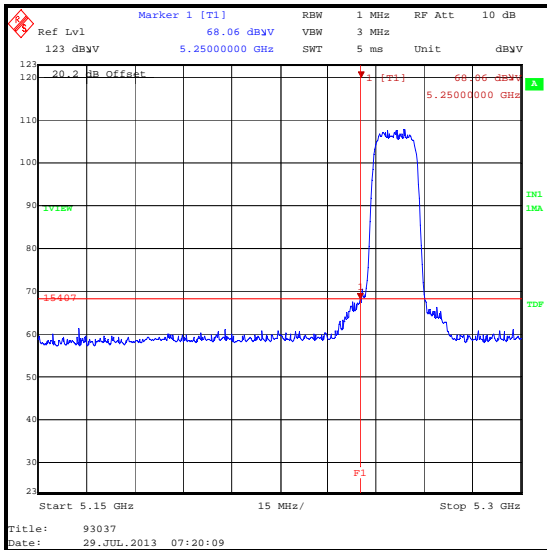
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5250	68.1	68.2	0.1	Complied
5350	67.2	74.0	6.8	Complied

**Results: Omnidirectional Antenna / 15 MHz Channel / 256QAM / Average**

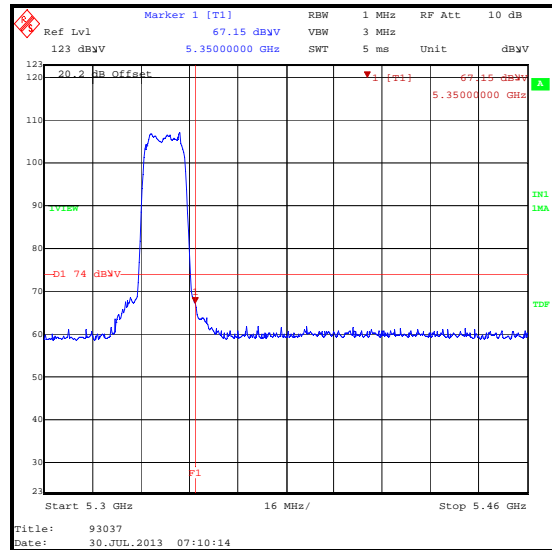
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	52.9	54.0	1.1	Complied

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

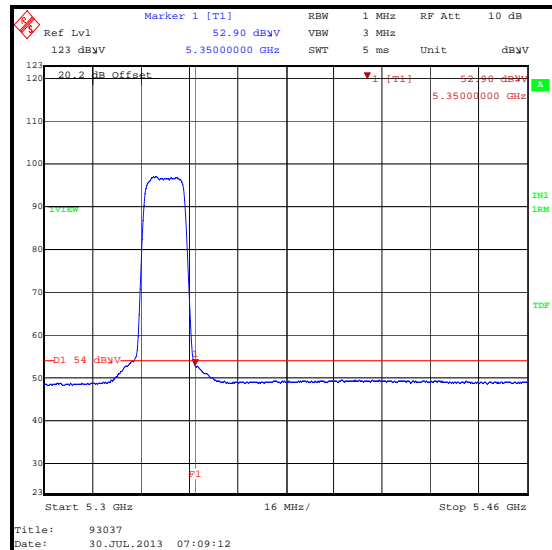
**Results: Omnidirectional Antenna / 15 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Omnidirectional Antenna / 20 MHz Channel / 256QAM / Peak**

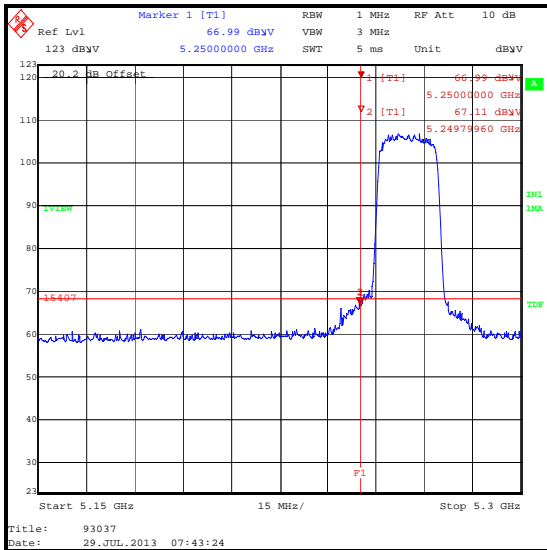
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5249.800	67.1	68.2	1.1	Complied
5250	67.0	68.2	1.2	Complied
5350	66.9	74.0	7.1	Complied

**Results: Omnidirectional Antenna / 20 MHz Channel / 256QAM / Average**

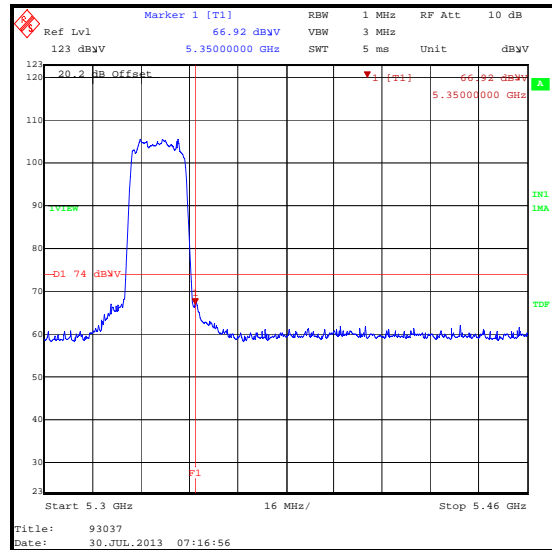
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	53.1	54.0	0.9	Complied

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

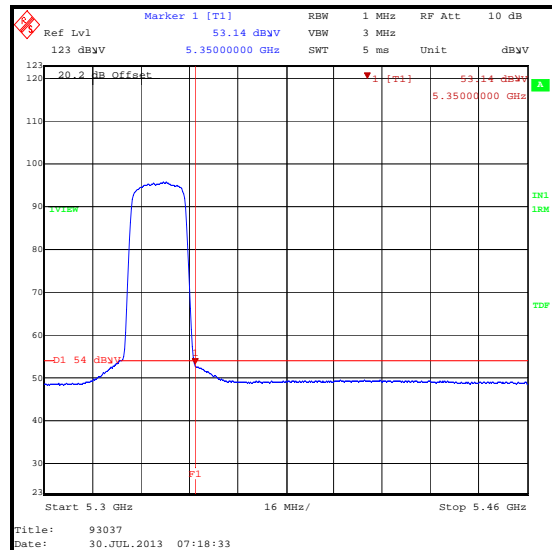
**Results: Omnidirectional Antenna / 20 MHz Channel / 256QAM**



Lower Band Edge / Peak



Upper Band Edge / Peak



Upper Band Edge / Average

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Omnidirectional Antenna / 30 MHz Channel / 256QAM / Peak**

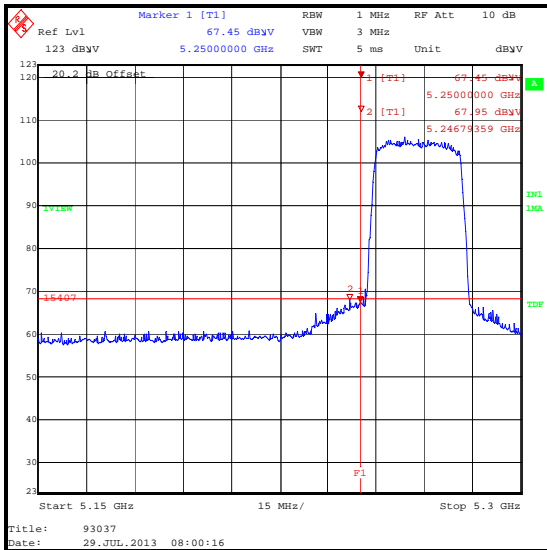
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5246.794	68.0	68.2	0.2	Complied
5250	67.5	68.2	0.7	Complied
5350	64.4	74.0	9.6	Complied
5352.585	64.6	74.0	9.4	Complied

**Results: Omnidirectional Antenna / 30 MHz Channel / 256QAM / Average**

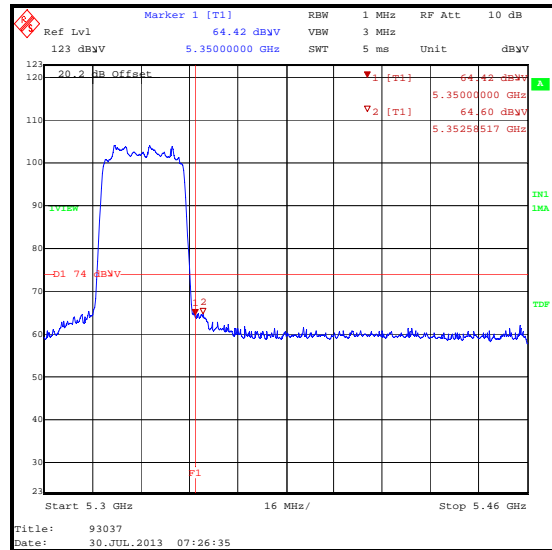
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	53.3	54.0	0.7	Complied

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

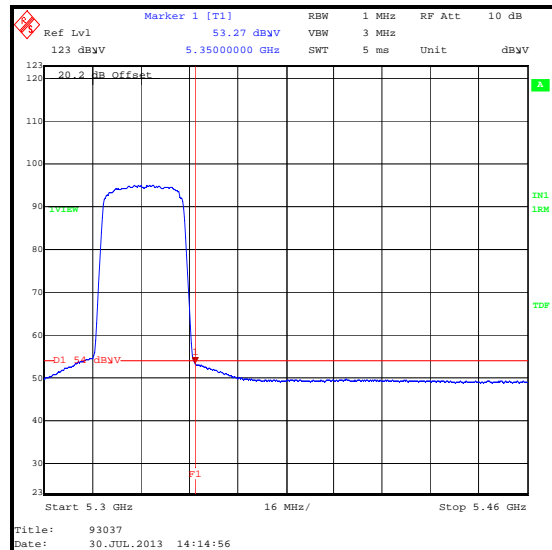
**Results: Omnidirectional Antenna / 30 MHz Channel / 256QAM**



Lower Band Edge / Peak



Upper Band Edge / Peak



Upper Band Edge / Average



**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Omnidirectional Antenna / 40 MHz Channel / 256QAM / Peak**

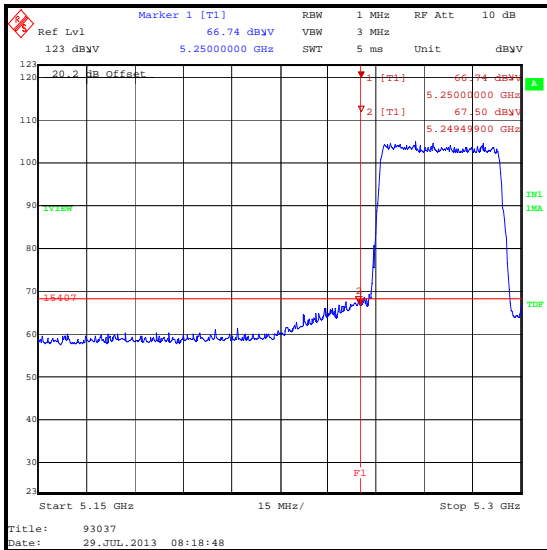
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5249.499	67.5	68.2	0.7	Complied
5250	66.7	68.2	1.5	Complied
5350	63.7	74.0	10.3	Complied

**Results: Omnidirectional Antenna / 40 MHz Channel / 256QAM / Average**

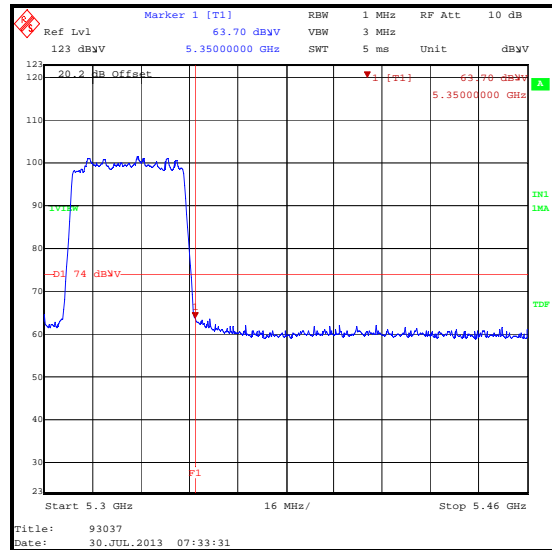
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	52.9	54.0	1.1	Complied

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

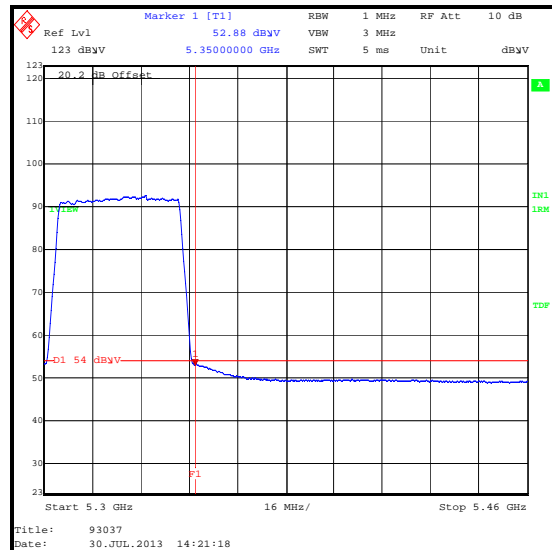
**Results: Omnidirectional Antenna / 40 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**

**Transmitter Band Edge Radiated Emissions (5.25-5.35 GHz band operation) (continued)****Results: Omnidirectional Antenna / 45 MHz Channel / 256QAM / Peak**

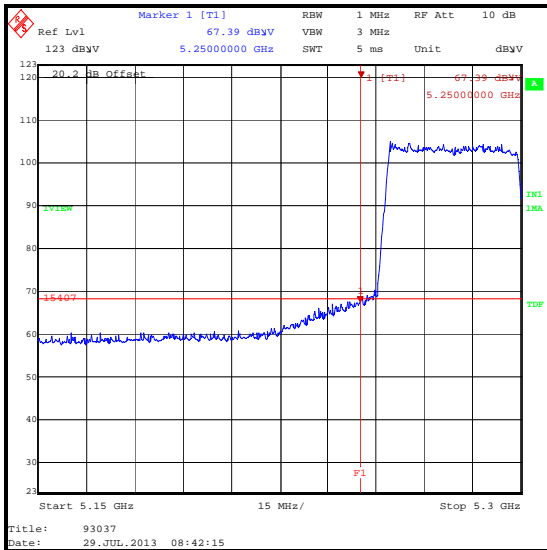
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5250	67.4	68.2	0.8	Complied
5350	62.6	74.0	11.4	Complied
5353.226	63.4	74.0	10.6	Complied

**Results: Omnidirectional Antenna / 45 MHz Channel / 256QAM / Average**

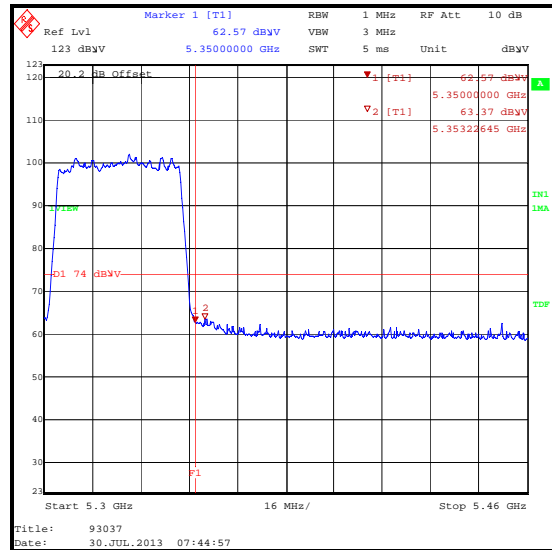
Frequency (MHz)	Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Result
5350	52.9	54.0	1.1	Complied

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

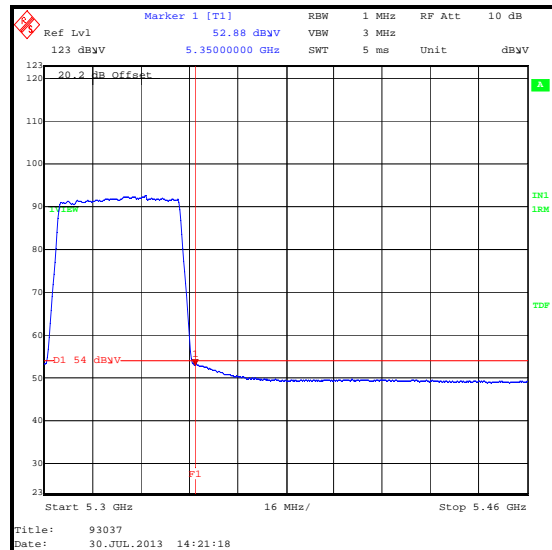
**Results: Omnidirectional Antenna / 45 MHz Channel / 256QAM**



**Lower Band Edge / Peak**



**Upper Band Edge / Peak**



**Upper Band Edge / Average**

**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band)****Test Summary:**

<b>Test Engineers:</b>	Ian Watch, David Doyle & Philip Harrison	<b>Test Dates:</b>	19 June 2013 to 31 July 2013
<b>Test Sample Serial Number:</b>	0004565000B3		

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

**Environmental Conditions:**

<b>Temperature (°C):</b>	24 to 29
<b>Relative Humidity (%):</b>	31 to 48

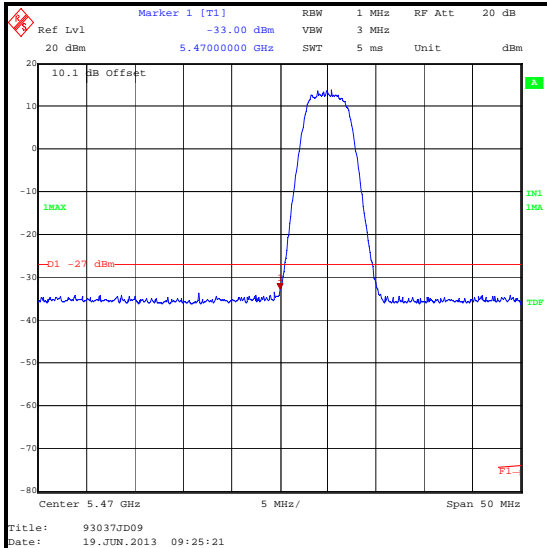
**Note(s):**

- Band edge tests were performed as radiated measurements in the operating mode that produced the highest emission levels at band edges. All modes were initially tested and the mode that produced the highest levels was 256QAM. The EUT was transmitting with >99% duty cycle and at maximum power for bottom or top channel according to the antenna being used (refer to Section 4.2). All antennas types were tested. The EUT was connected to each antenna using the supplied RF cables.
- Lower band edge measurements were performed with the EUT transmitting on the bottom channel at maximum power. The lower band edge plots show a lower band edge frequency line at 5.47 GHz. A non-restricted band of operation exists adjacent to and below the lower band edge and the general limit of -27 dBm/MHz E.I.R.P. applies. Tests were performed as a combination of E.I.R.P and field strength measurements. Where E.I.R.P measurements were made, the -27 dBm limit is shown. Where field strength measurements were made, the -27 dBm E.I.R.P. limit was converted to a field strength limit of 68.2 dBµV/m at 3 metres in accordance with FCC KDB 789033 H)2)d)(i) using a conversion factor of 95.2. This limit line is marked on some plots as "15407". A peak detector was used (worst case). A restricted band of operation exists 10 MHz below the lower band edge at 5.35 GHz to 5.46 GHz. The lower band edge field strength plots show a frequency line at 5.46 GHz and an average trace is shown (the lower of the two traces) with an associated frequency line and marker at 5.46 GHz. Spurious emissions found in the 5.35 GHz to 5.46 GHz restricted band are shown in the Transmitter Out of Band Radiated Emissions section of this test report.
- Upper band edge measurements were performed with the EUT transmitting on the top channel. The upper band edge plots show an upper band edge frequency line at 5.725 GHz. A non-restricted band of operation exists adjacent to and above the upper band edge and the general limit of -27 dBm/MHz E.I.R.P. applies. Tests were performed as a combination of E.I.R.P. and field strength measurements. Where E.I.R.P measurements were made, the -27 dBm limit is shown. Where field strength measurements were made, the -27 dBm E.I.R.P. limit was converted to a field strength limit of 68.2 dBµV/m at 3 metres in accordance with FCC KDB 789033 H)2)d)(i) using a conversion factor of 95.2. A peak detector was used (worst case).

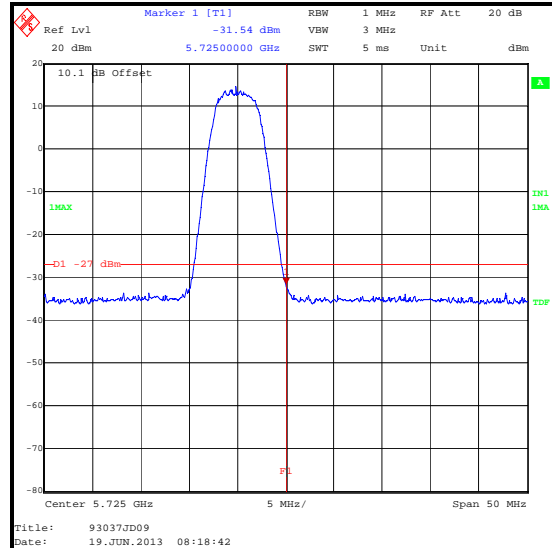
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / 4' Parabolic Antenna / 5 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5470	-33.0	-27.0	6.0	Complied
5725	-31.5	-27.0	4.5	Complied



**Lower Band Edge Measurement**

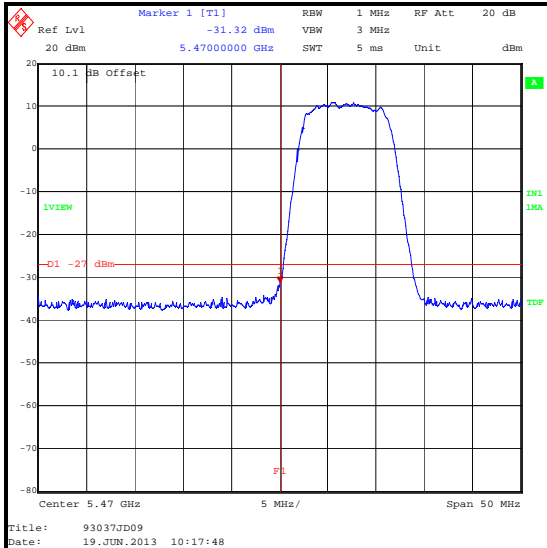


**Upper Band Edge Measurement**

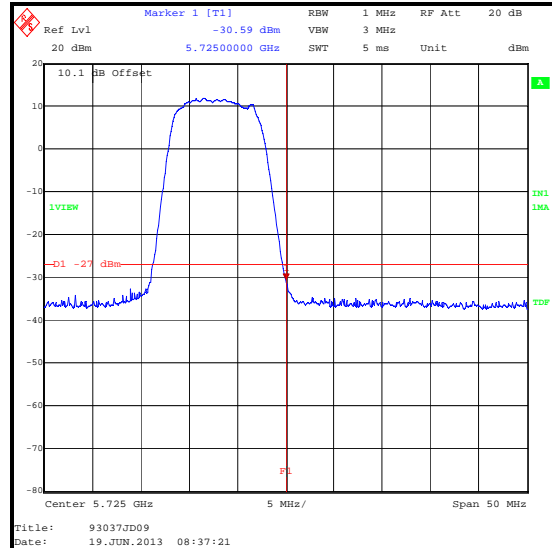
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / 4' Parabolic Antenna / 10 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5470	-31.3	-27.0	4.3	Complied
5725	-30.6	-27.0	3.6	Complied



**Lower Band Edge Measurement**

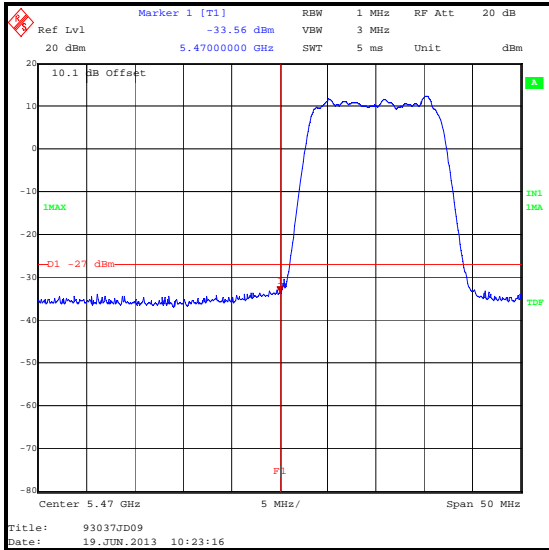


**Upper Band Edge Measurement**

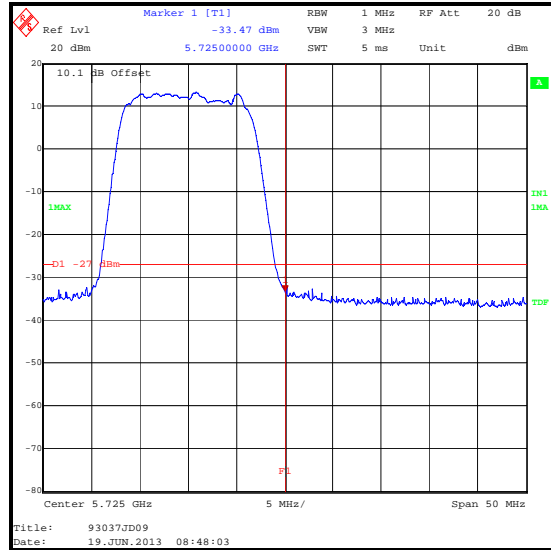
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / 4' Parabolic Antenna / 15 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5470	-33.6	-27.0	6.6	Complied
5725	-33.5	-27.0	6.5	Complied



**Lower Band Edge Measurement**



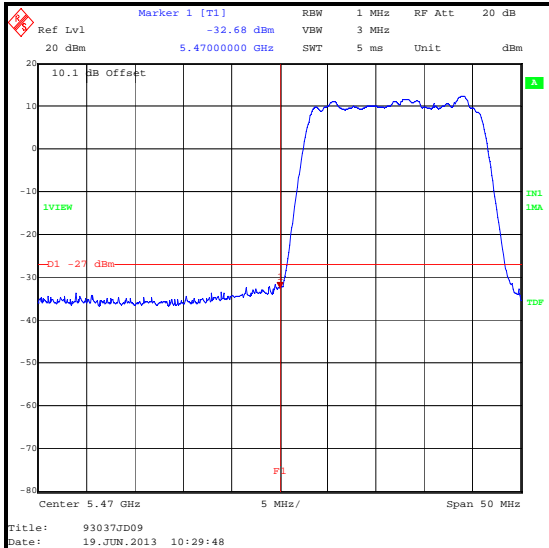
**Upper Band Edge Measurement**



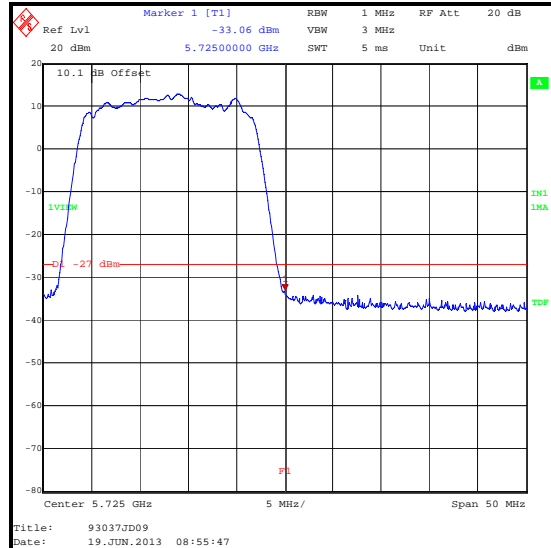
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / 4' Parabolic Antenna / 20 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5470	-32.7	-27.0	5.7	Complied
5725	-33.1	-27.0	6.1	Complied



**Lower Band Edge Measurement**

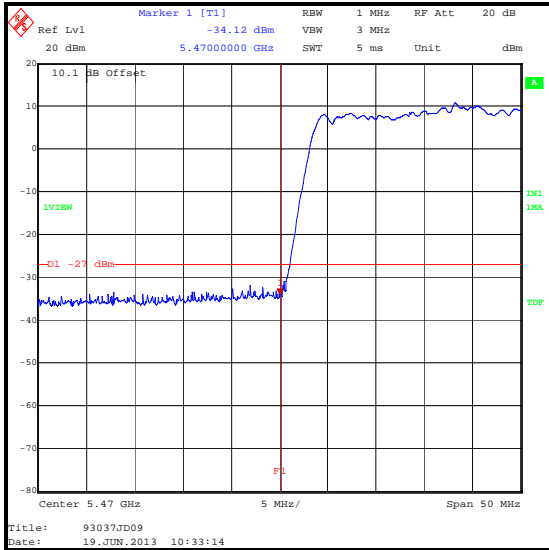


**Upper Band Edge Measurement**

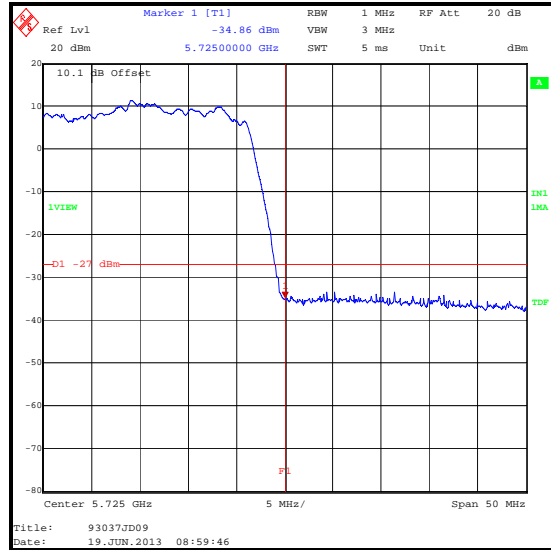
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / 4' Parabolic Antenna / 30 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5470	-34.1	-27.0	7.1	Complied
5725	-34.9	-27.0	7.9	Complied



**Lower Band Edge Measurement**

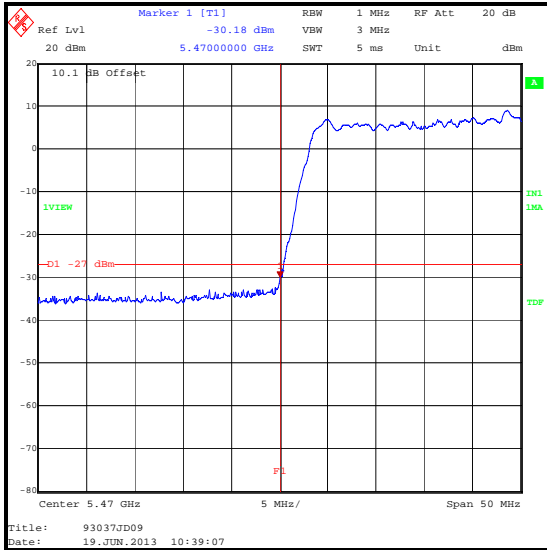


**Upper Band Edge Measurement**

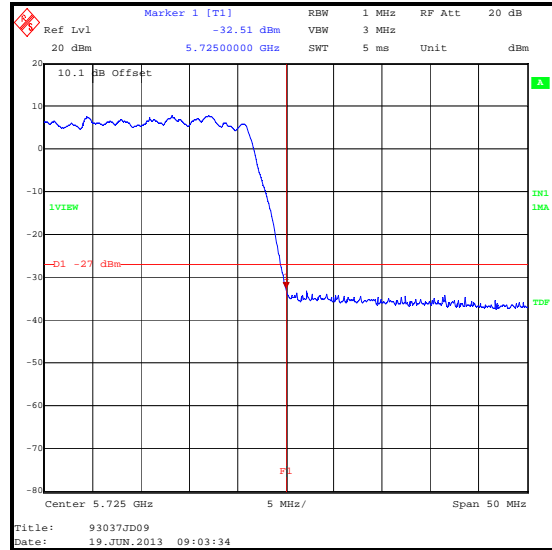
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / 4' Parabolic Antenna / 40 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5470	-30.2	-27.0	3.2	Complied
5725	-32.5	-27.0	5.5	Complied



**Lower Band Edge Measurement**

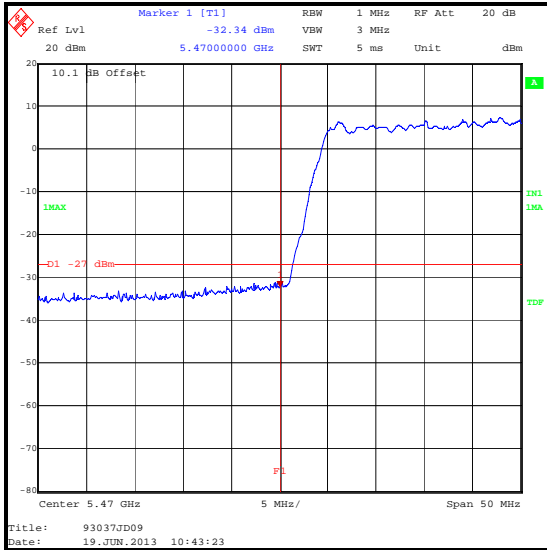


**Upper Band Edge Measurement**

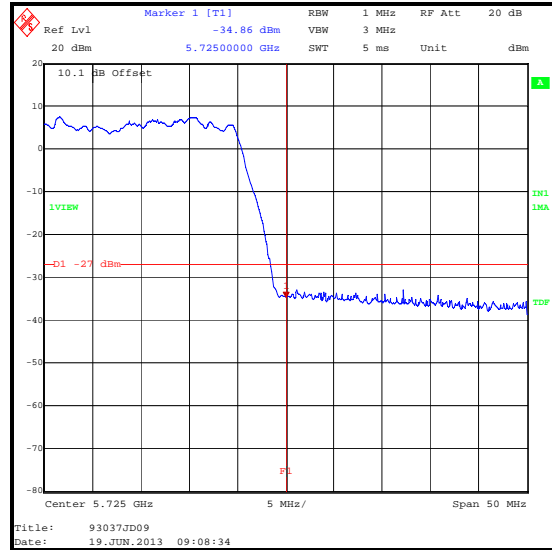
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / 4' Parabolic Antenna / 45 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5470	-32.3	-27.0	5.3	Complied
5725	-34.9	-27.0	7.9	Complied



**Lower Band Edge Measurement**

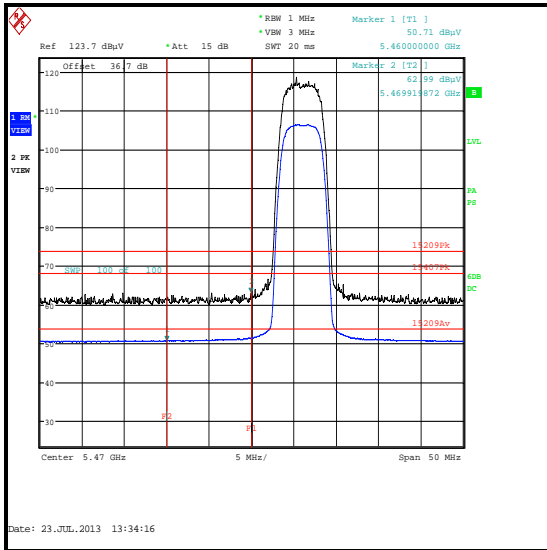


**Upper Band Edge Measurement**

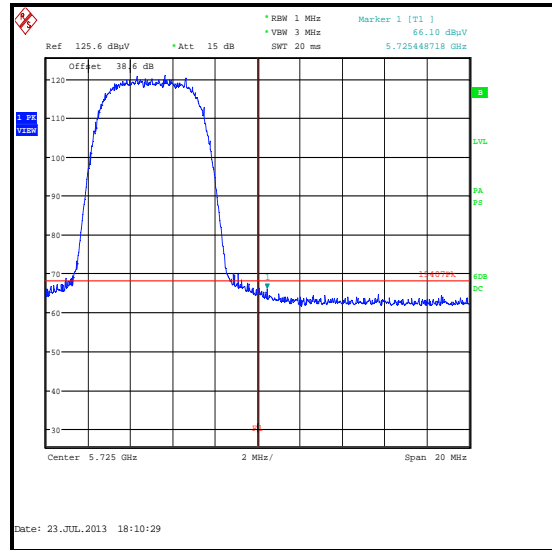
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Plate Antenna / 5 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5470	-32.2	-27.0	5.2	Complied
5725	-29.1	-27.0	2.1	Complied



**Lower Band Edge Measurement**

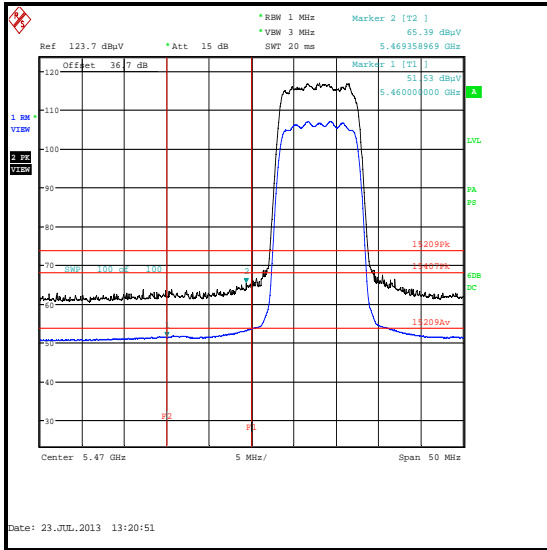


**Upper Band Edge Measurement**

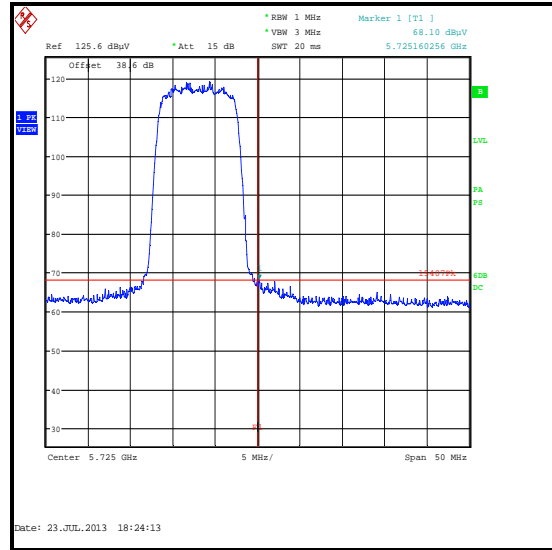
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Plate Antenna / 10 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5470	-29.8	-27.0	2.8	Complied
5725	-27.1	-27.0	0.1	Complied



**Lower Band Edge Measurement**

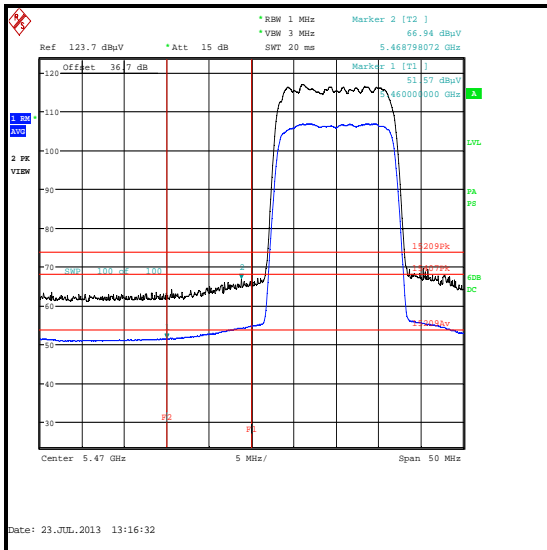


**Upper Band Edge Measurement**

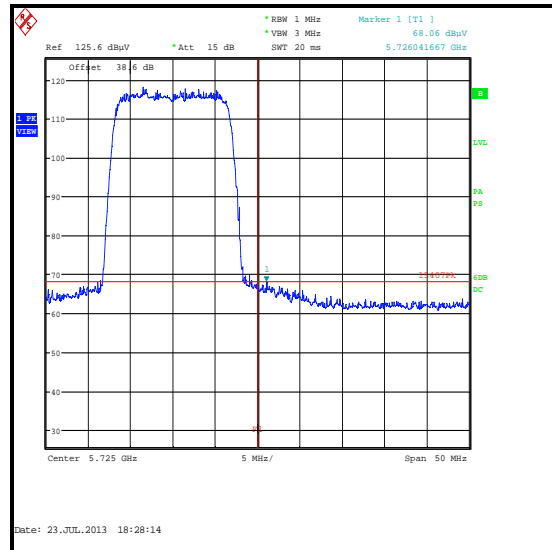
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Plate Antenna / 15 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5468.798	-28.3	-27.0	1.3	Complied
5470	-29.0	-27.0	2.0	Complied
5725	-29.0	-27.0	2.0	Complied
5726.042	-27.1	-27.0	0.1	Complied



**Lower Band Edge Measurement**

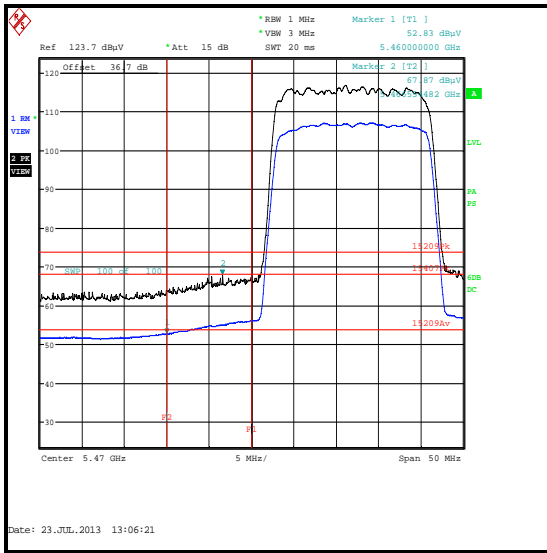


**Upper Band Edge Measurement**

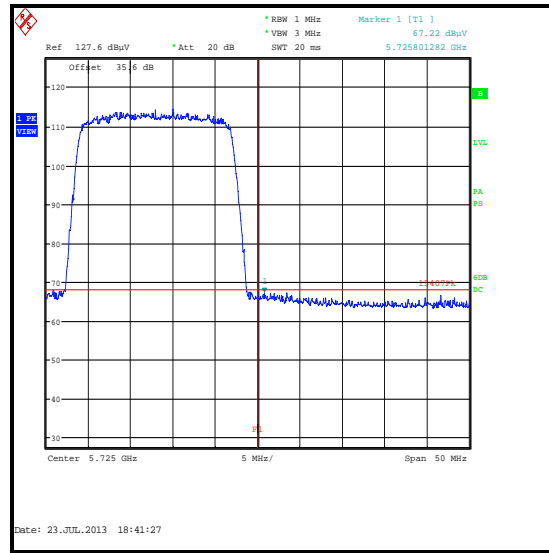
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Plate Antenna / 20 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5466.554	-27.3	-27.0	0.3	Complied
5470	-28.0	-27.0	1.0	Complied
5725	-29.0	-27.0	2.0	Complied
5725.801	-28.0	-27.0	1.0	Complied



**Lower Band Edge Measurement**



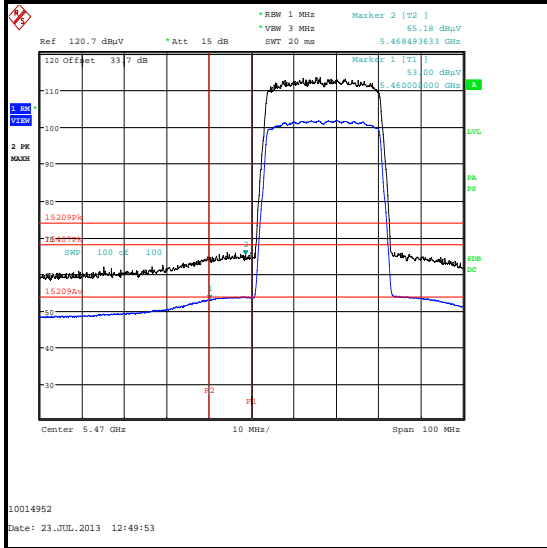
**Upper Band Edge Measurement**



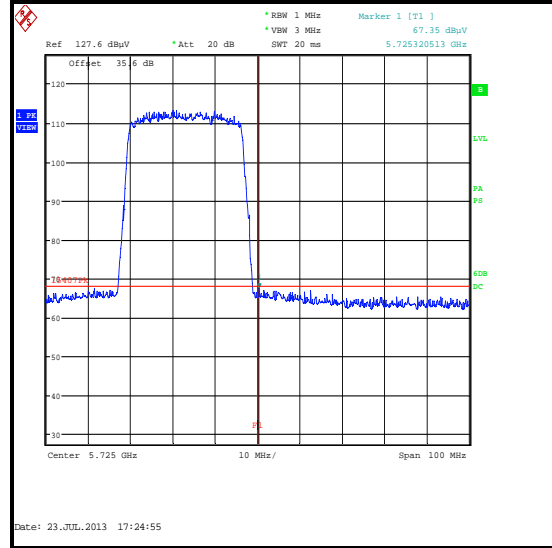
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Plate Antenna / 30 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5470	-28.0	-27.0	1.0	Complied
5725	-27.8	-27.0	0.8	Complied



Lower Band Edge Measurement

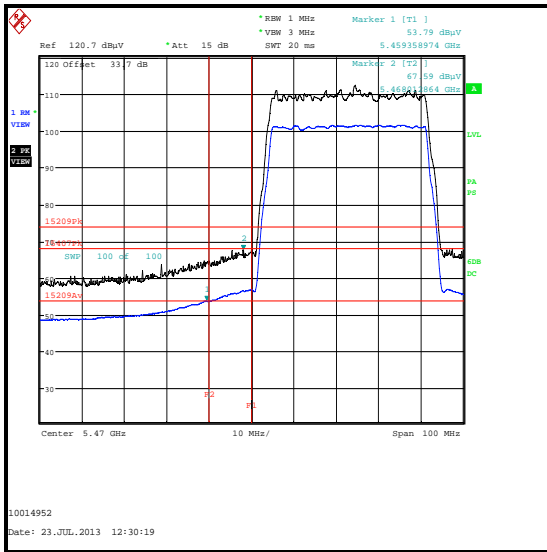


Upper Band Edge Measurement

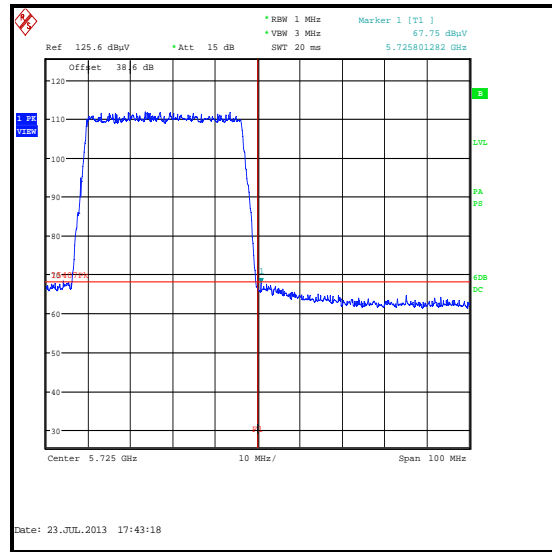
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Plate Antenna / 40 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5468.013	-27.6	-27.0	0.6	Complied
5470	-28.0	-27.0	1.0	Complied
5725	-27.4	-27.0	0.4	Complied



**Lower Band Edge Measurement**

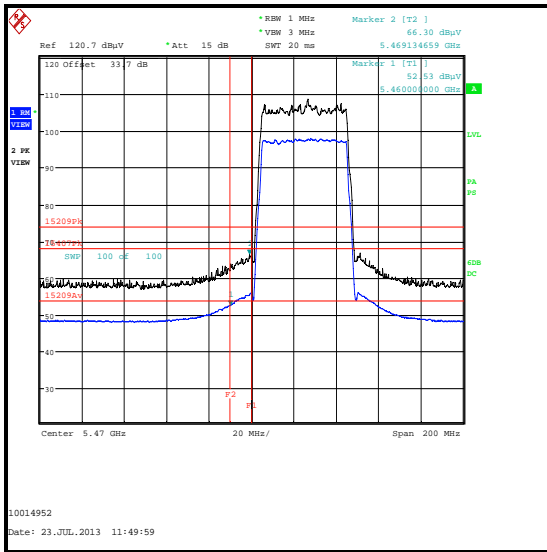


**Upper Band Edge Measurement**

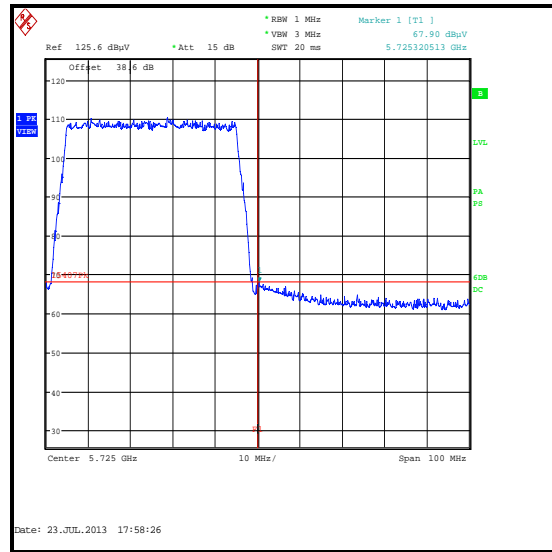
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Plate Antenna / 45 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5469.135	-28.9	-27.0	1.9	Complied
5470	-29.0	-27.0	2.0	Complied
5725.321	-27.3	-27.0	0.3	Complied



Lower Band Edge Measurement

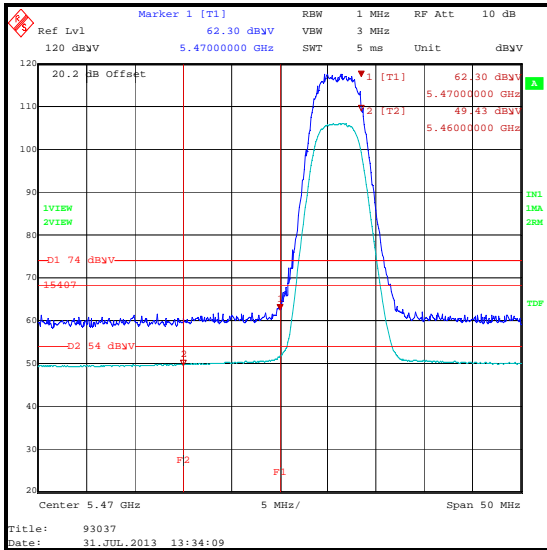


Upper Band Edge Measurement

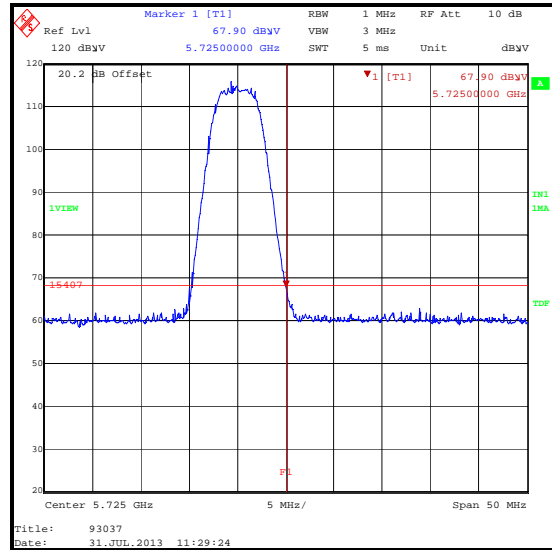
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Sectorised Antenna / 5 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5470	-32.9	-27.0	5.9	Complied
5725	-27.3	-27.0	0.3	Complied



**Lower Band Edge Measurement**

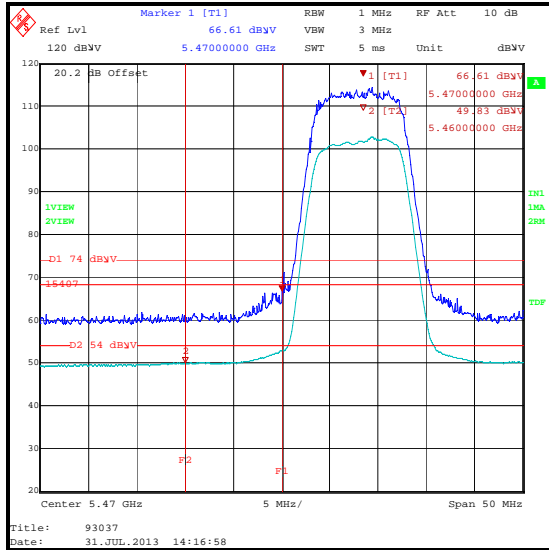


**Upper Band Edge Measurement**

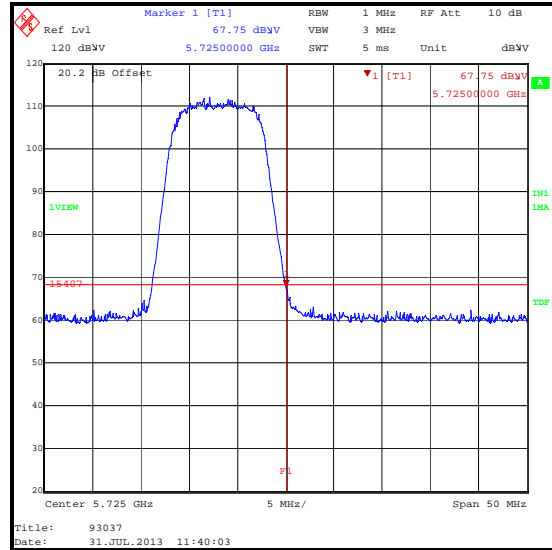
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Sectorised Antenna / 10 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5470	-28.6	-27.0	1.6	Complied
5725	-27.4	-27.0	0.4	Complied



**Lower Band Edge Measurement**

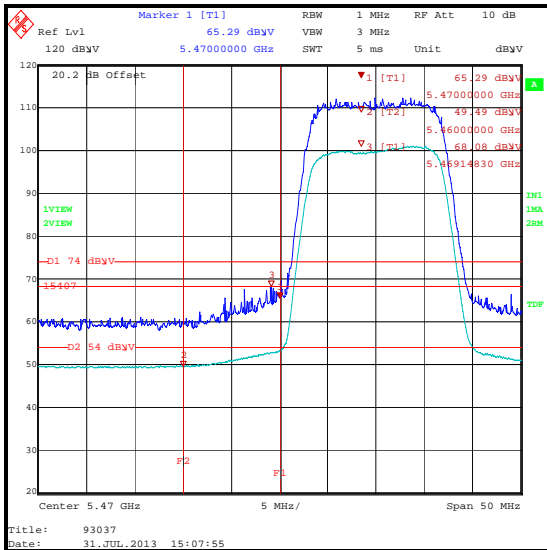


**Upper Band Edge Measurement**

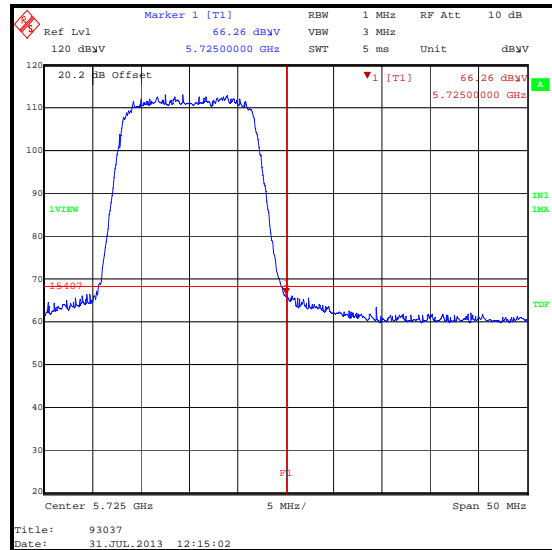
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Sectorised Antenna / 15 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5469.148	-27.1	-27.0	0.1	Complied
5470	-29.9	-27.0	2.9	Complied
5725	-28.9	-27.0	1.9	Complied



Lower Band Edge Measurement

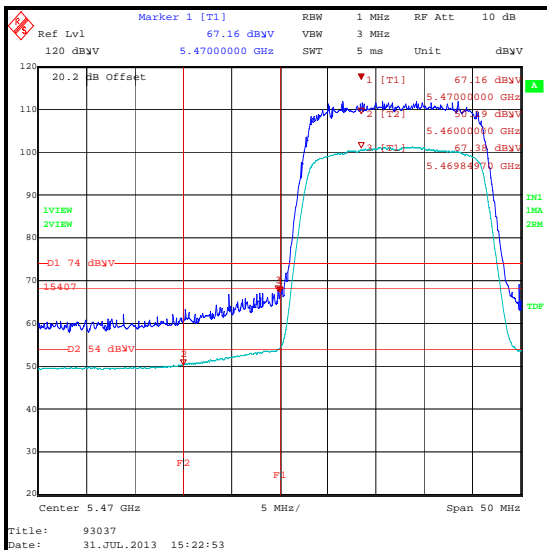


Upper Band Edge Measurement

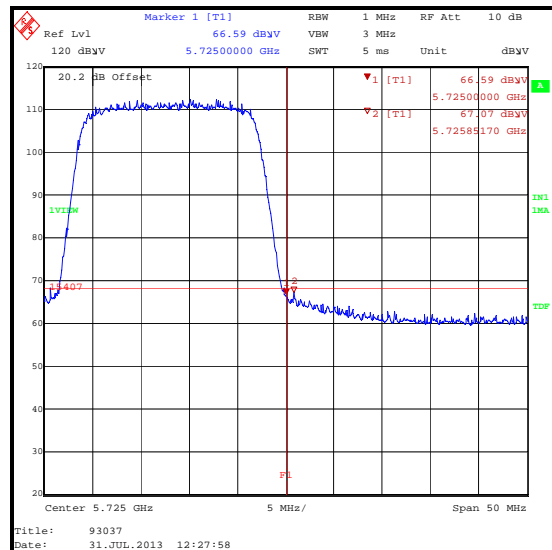
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Sectorised Antenna / 20 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5469.850	-27.8	-27.0	0.8	Complied
5470	-28.0	-27.0	1.0	Complied
5725	-28.6	-27.0	1.6	Complied
5725.852	-28.1	-27.0	1.1	Complied



**Lower Band Edge Measurement**

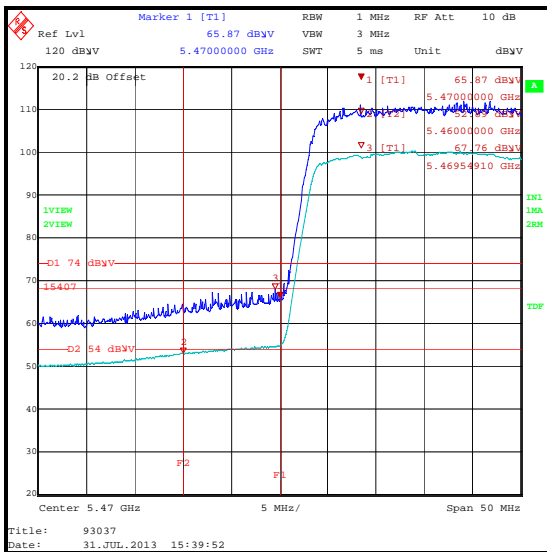


**Upper Band Edge Measurement**

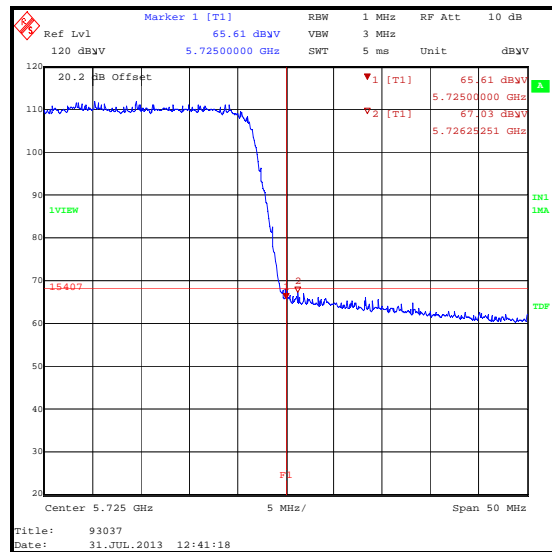
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Sectorised Antenna / 30 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5469.549	-27.4	-27.0	0.4	Complied
5470	-29.3	-27.0	2.3	Complied
5725	-29.6	-27.0	2.6	Complied
5726.253	-28.2	-27.0	1.2	Complied



Lower Band Edge Measurement



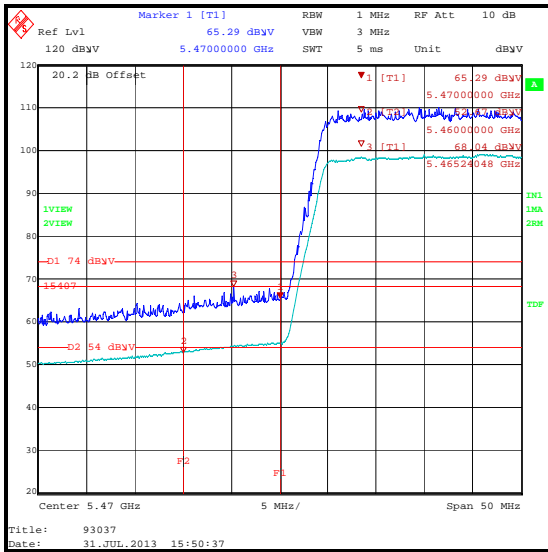
Upper Band Edge Measurement



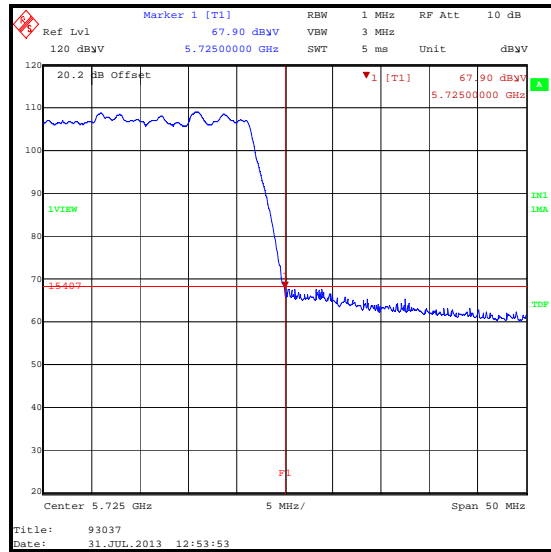
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Sectorised Antenna / 40 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5465.240	-27.2	-27.0	0.2	Complied
5470	-29.9	-27.0	2.9	Complied
5725	-27.3	-27.0	0.3	Complied



**Lower Band Edge Measurement**

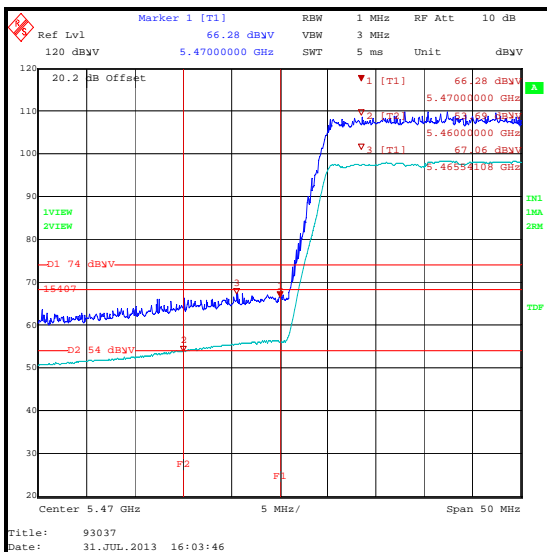


**Upper Band Edge Measurement**

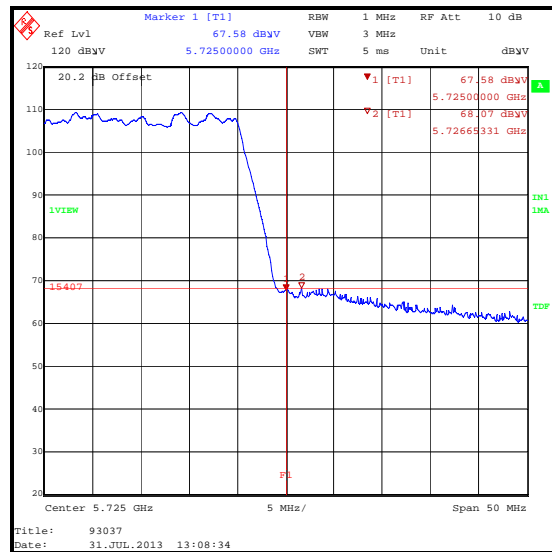
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Sectorised Antenna / 45 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5465.541	-28.1	-27.0	1.1	Complied
5470	-28.9	-27.0	1.9	Complied
5725	-27.6	-27.0	0.6	Complied
5726.653	-27.1	-27.0	0.1	Complied



Lower Band Edge Measurement

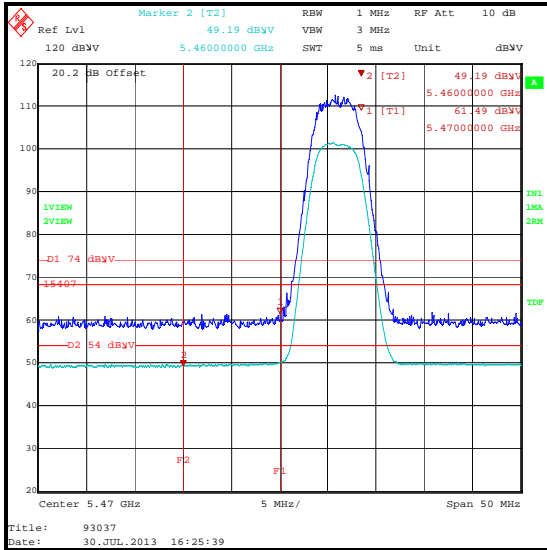


Upper Band Edge Measurement

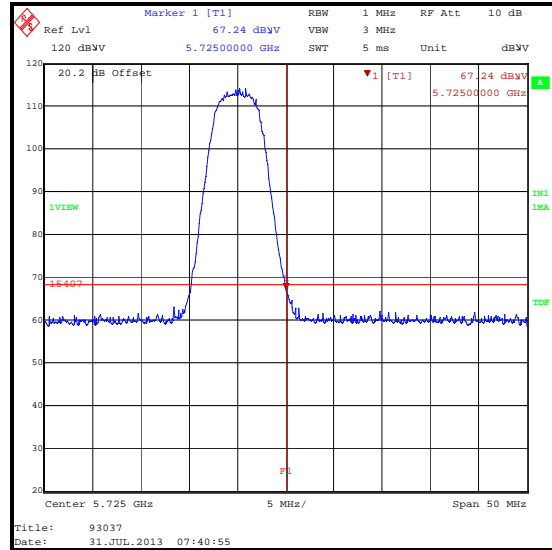
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Omnidirectional Antenna / 5 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5470	-33.7	-27.0	6.7	Complied
5725	-28.0	-27.0	1.0	Complied



**Lower Band Edge Measurement**

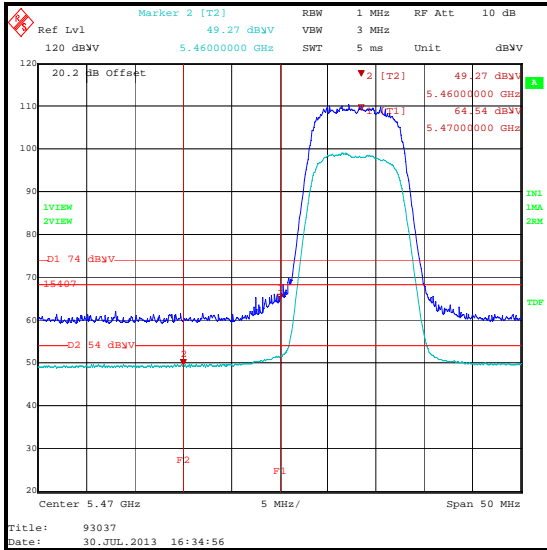


**Upper Band Edge Measurement**

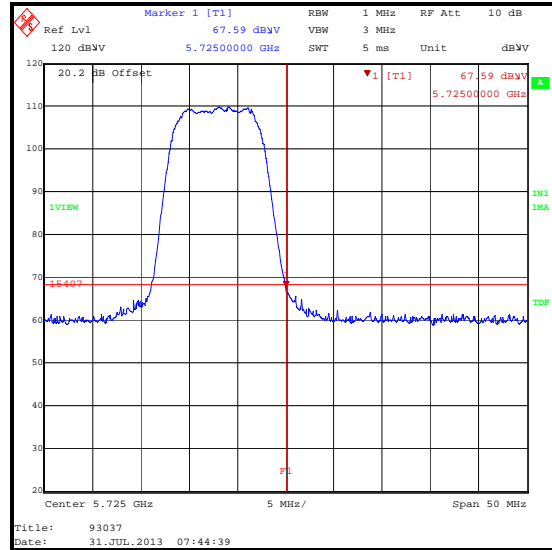
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Omnidirectional Antenna / 10 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5470	-30.7	-27.0	3.7	Complied
5725	-27.6	-27.0	0.6	Complied



**Lower Band Edge Measurement**

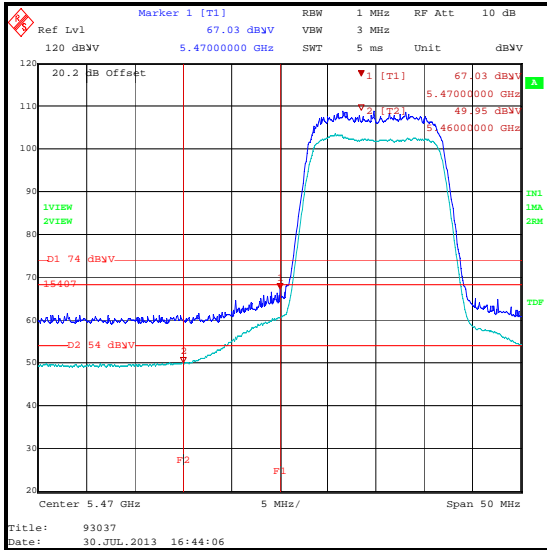


**Upper Band Edge Measurement**

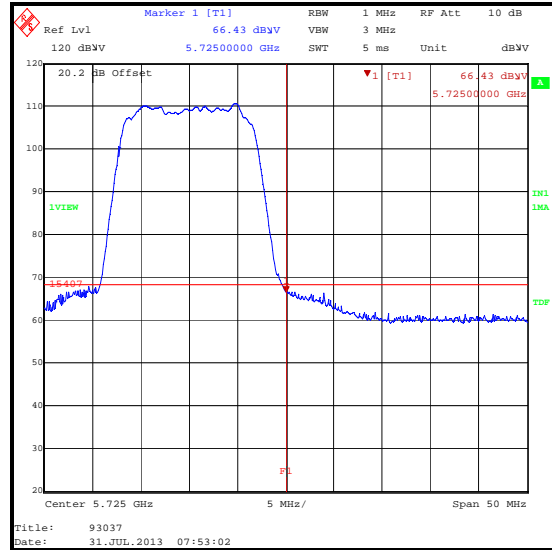
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Omnidirectional Antenna / 15 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5470	-28.2	-27.0	1.2	Complied
5725	-28.8	-27.0	1.8	Complied



Lower Band Edge Measurement

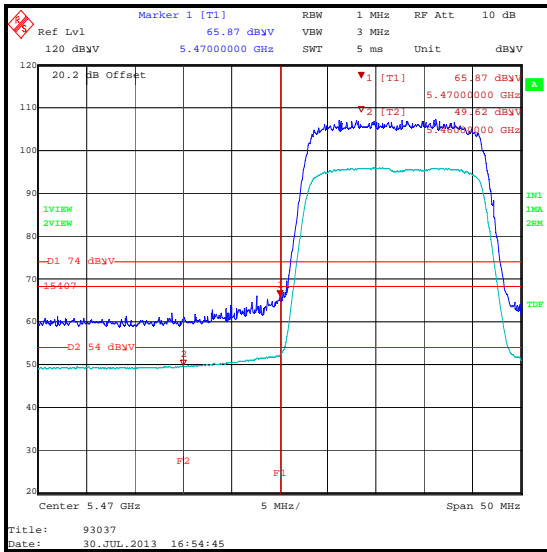


Upper Band Edge Measurement

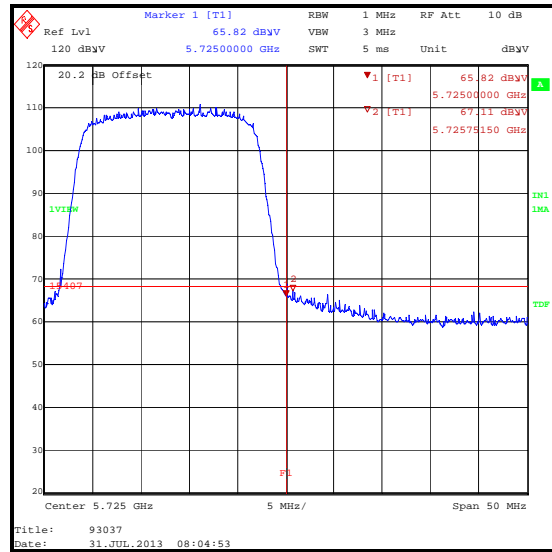
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Omnidirectional Antenna / 20 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5470	-29.3	-27.0	2.3	Complied
5725	-29.4	-27.0	2.4	Complied
5725.752	-28.1	-27.0	1.1	Complied



Lower Band Edge Measurement

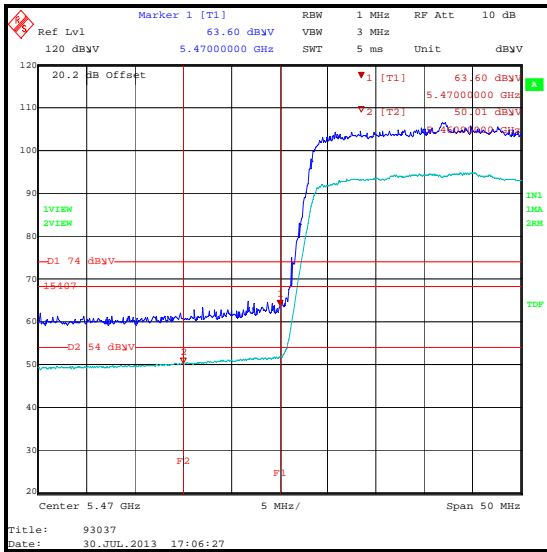


Upper Band Edge Measurement

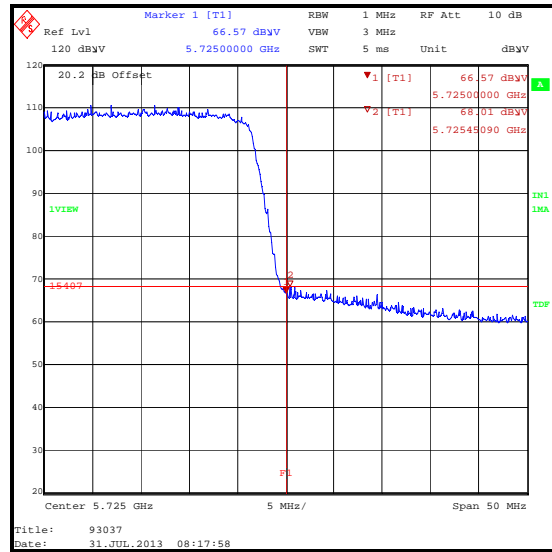
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Omnidirectional Antenna / 30 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5470	-31.6	-27.0	4.6	Complied
5725	-28.6	-27.0	1.6	Complied
5725.451	-27.2	-27.0	0.2	Complied



**Lower Band Edge Measurement**

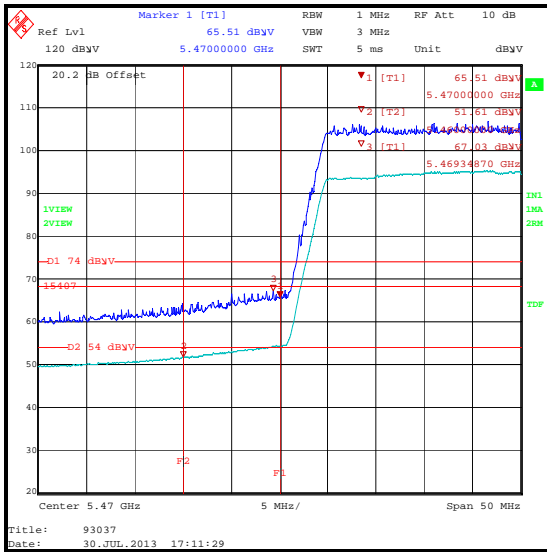


**Upper Band Edge Measurement**

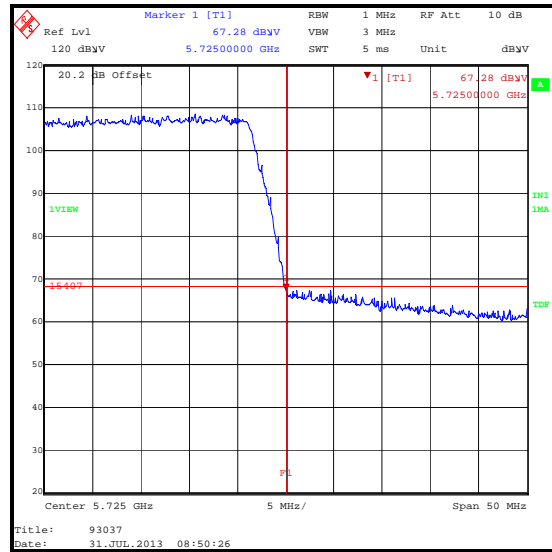
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Omnidirectional Antenna / 40 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5469.349	-28.2	-27.0	1.2	Complied
5470	-29.7	-27.0	2.7	Complied
5725	-27.9	-27.0	0.9	Complied



**Lower Band Edge Measurement**



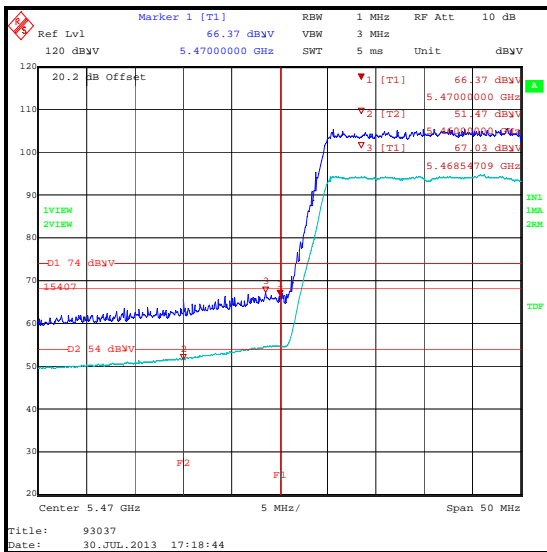
**Upper Band Edge Measurement**



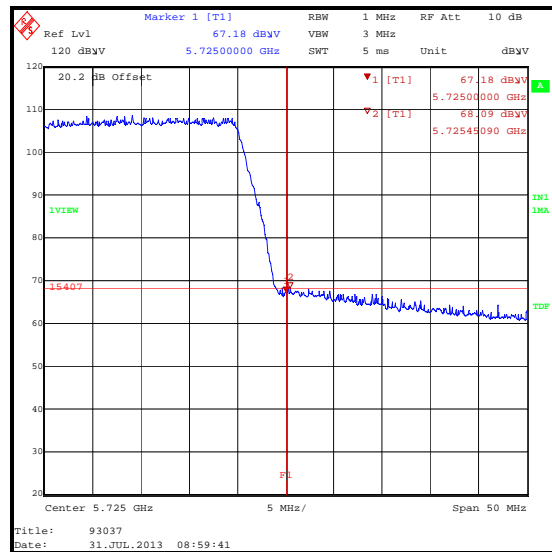
**Transmitter Band Edge Radiated Emissions (5.47-5.725 GHz band operation) (continued)**

**Results: 256QAM / Peak / Omnidirectional Antenna / 45 MHz Channel**

Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
5468.547	-28.2	-27.0	1.2	Complied
5470	-28.8	-27.0	1.8	Complied
5725	-28.0	-27.0	1.0	Complied
5725.451	-27.1	-27.0	0.1	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	M1656	12
K0001	5m RSE Chamber	Rainford EMC	N/A	N/A	24 Oct 2013	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	04 Nov 2013	12
M1124	Test Receiver	Rohde & Schwarz	ESIB26	100046K	14 Aug 2013	12
M1021	Signal Generator	Rohde & Schwarz	SMP02	833286/004	05 Feb 2014	12
M1267	Power Sensor	Rohde & Schwarz	NRV-Z52	100155	14 May 2014	12
M199	Power meter	Rohde & Schwarz	NRVS	827023/075	15 May 2014	12
A032	Antenna	EMCO	3115	2874	12 Mar 2016	36
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	04 Nov 2013	12
L1028	Signal Analyser	Rohde & Schwarz	FSV30	100854	23 May 2014	12
A253	Antenna	Flann	12240-20	128	04 Nov 2013	12
A2000	Attenuator	Huber & Suhner	6830.17.B	301623	10 May 2014	12
A1395	Attenuator	Huber & Suhner	6806.17.B	753459	10 May 2014	12
A1393	Attenuator	Huber & Suhner	6820.17.B	757456	10 May 2014	12
A1396	Attenuator	Huber & Suhner	6810.17.B	757987	10 May 2014	12

**5.2.8. Transmitter Power Control****Test Summary:**

<b>Test Engineer:</b>	Ian Watch	<b>Test Date:</b>	08 August 2013
<b>Test Sample Serial Number:</b>	0004565000A3		

<b>FCC Reference:</b>	Part 15.407(h)
<b>Test Method Used:</b>	FCC KDB 789033 D01 Section E)3)a) Method PM

**Environmental Conditions:**

<b>Temperature (°C):</b>	26
<b>Relative Humidity (%):</b>	38

**Note(s):**

1. Transmitter power control tests were performed as the maximum E.I.R.P. is greater than 500 mW.
2. Tests were performed with the EUT transmitting from the highest configurable RF power to the lowest configurable RF power. The EUT graphical user interface was used to configure the power in step increments of 1.
3. All conducted power measurements were made using an RF average power meter in accordance with FCC KDB 789033 E)3)a) Method PM. Power was measured on both RF ports. The power was combined. This test has no limit. The test was performed to prove control of the RF output power.

**Transmitter Power Control (continued)****Results: 5 MHz Channel / 256QAM / Top Channel / 5720 MHz**

Graphical Use Interface Power Setting	Measured Conducted Power H Port (dBm)	Measured Conducted Power V Port (dBm)	Combined Conducted Power (dBm)
14	10.1	10.5	13.3
13	8.7	9.3	12.0
12	7.8	8.3	11.1
11	6.8	7.3	10.1
10	6.0	6.6	9.3
9	5.0	5.5	8.3
8	3.8	4.3	7.1
7	2.7	3.4	6.1
6	1.8	2.4	5.1
5	1.0	1.2	4.1
4	-0.3	0.2	3.0
3	-1.1	-0.7	2.1
2	-2.1	-1.9	1.0
1	-3.4	-2.8	-0.1
-1	-5.3	-5.1	-2.2
-2	-6.5	-6.1	-3.3
-3	-8.1	-7.7	-4.9
-4	-8.7	-8.7	-5.7
-5	-9.9	-9.2	-6.5
-6	-10.7	-10.7	-7.7
-7	-11.7	-11.5	-8.6
-8	-12.2	-12.6	-9.4
-9	-14.0	-14.0	-11.0

**Test Equipment Used:**

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M260	Signal Generator	Rohde & Schwarz	SMP02	829076/008	25 Jun 2014	12
A2144	Attenuator	AtlanTec RF	AN18-20	081120-23	10 May 2014	12
M1435	Power Meter	HP	437B	3215U14631	26 Apr 2014	12
M1175	Power Sensor	HP	8487A	2942A10299	19 Sep 2013	12
M1658	Thermohyrometer	JM Handelspunkt	30.5015.13	None stated	24 May 2014	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".

<b>Measurement Type</b>	<b>Range</b>	<b>Confidence Level (%)</b>	<b>Calculated Uncertainty</b>
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	±4.69 dB
Conducted Output Power	5.25 GHz to 5.725 GHz	95%	±0.27 dB
Power Spectral Density	5.25 GHz to 5.725 GHz	95%	±1.13 dB
Occupied Bandwidth	5.25 GHz to 5.725 GHz	95%	±0.92 ppm
Radiated Spurious Emissions	30 MHz to 1 GHz	95%	±5.65 dB
Radiated Spurious Emissions	1 GHz to 40 GHz	95%	±2.54 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**

<b>Version Number</b>	<b>Revision Details</b>		
	<b>Page No(s)</b>	<b>Clause</b>	<b>Details</b>
1.0	-	-	Initial Version
2.0	1 8	-	Changed Model No. Changed 'Model No.' to 'Cambium Part No.'