

BLE for APQ Measurements Test Report

FCC ID: 2ADDK360FLY4K

IC: 12404A-360FLY4K

FCC Rule Part: CFR 47 Part 15 Subpart C

IC Radio Standards Specification: RSS-247

Manufacturer: 360fly Inc.

Model: 360FLY4K

**Test Facility: 12 Ang Mo Kio St 64 #03-01
UE BizHub Central (Blk A), 569088 Singapore.**

Test Begin Date: Mar 9, 2016

Test End Date: April 8, 2016

Report Issue Date: April 8, 2016

Test By:

Name: PS Yeo

Signature: *PSYeo*

Reviewed By:

Name: CC Pang

Signature: *CCPang*

1. List of Test Equipment

Manufacturer	Model	Equipment Type	Serial No.	Last Calibration Date	Calibration Due Date
Agilent	E4404B	Spectrum Analyzer	MY44220422	10 Feb 15	10 Feb 17
Advantest	R3273	Spectrum Analyzer	95090358	06 Oct 15	06 Oct 16
Agilent	N1911A	Power Meter	MY50150005	12 Jun 15	12 Jun 16
Agilent	N1921A	Power Sensor	MY53160021	23 Jun 15	23 Jun 16

2. Applicable Standard References

The following standards were used:

FCC Rules	IC Rules	Description of Test	Result
§ 15.247 (a) (2)	RSS 247 5.2.1	6dB Bandwidth	Pass
§ 15.247 (b) (3)	RSS 247 5.4.4	Peak Output Power	Pass
§ 15.247 (d)	RSS 247 5.5	100kHz Bandwidth of Frequency Band Edges	Pass
§ 15.247 (e)	RSS 247 5.2.2	Power Spectral Density	Pass
§ 15.209	RSS 247 5.5	Spurious Emission	Pass

3. Summary of Tests

3.1.1 6dB Bandwidth – FCC Section 15.247 (a) (2), RSS 247 5.2.1

3.1.1 Measurement Procedure

The 6dB bandwidth was measured in accordance with the **RSS 247 5.2.1** and the FCC KDB Publication No.558074 V03r02 “Guidance for Performing Compliance Measurements on Digital Transmission Systems (47 CFR 15.247)” DTS 6-dB Signal Bandwidth Option 1. The RBW of the spectrum analyzer was set to 100 kHz and VBW 300 kHz. Span was set large enough to capture the entire emissions and \gg RBW.

The 99% occupied bandwidth was measured using the spectrum analyzer span set to fully display the emission, including the emissions skirts. The RBW was set to 1% to 3% of the 99% bandwidth. The VBW was set to 3 times the RBW. The spectrum analyzer internal 99% bandwidth function is utilized.

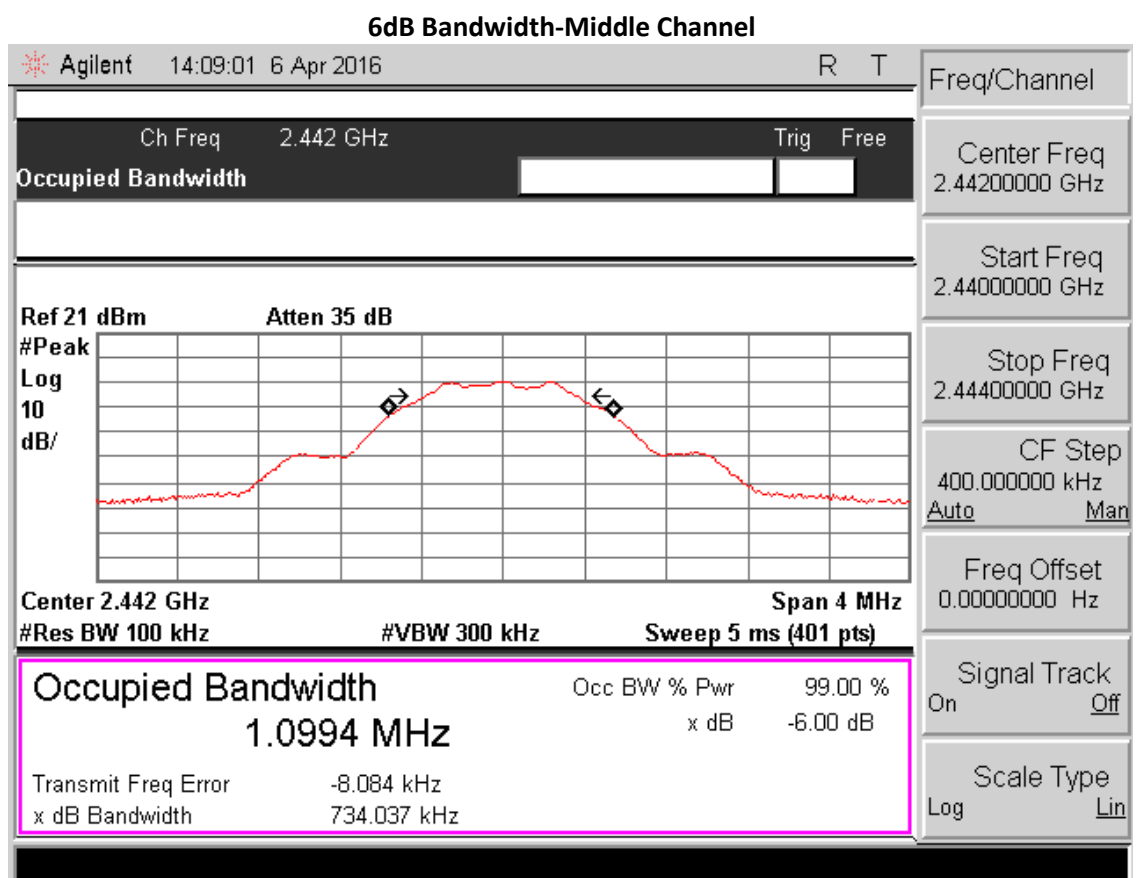
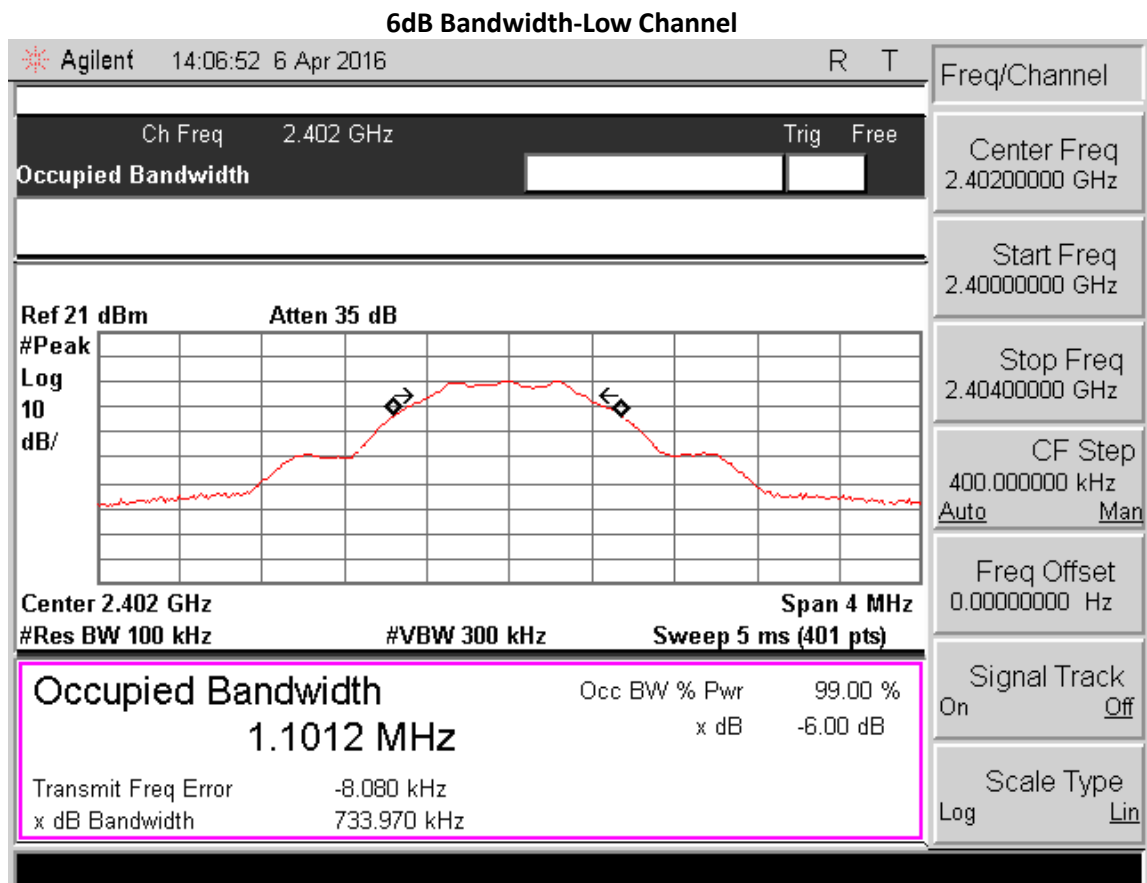
3.1.2 Measurement Results

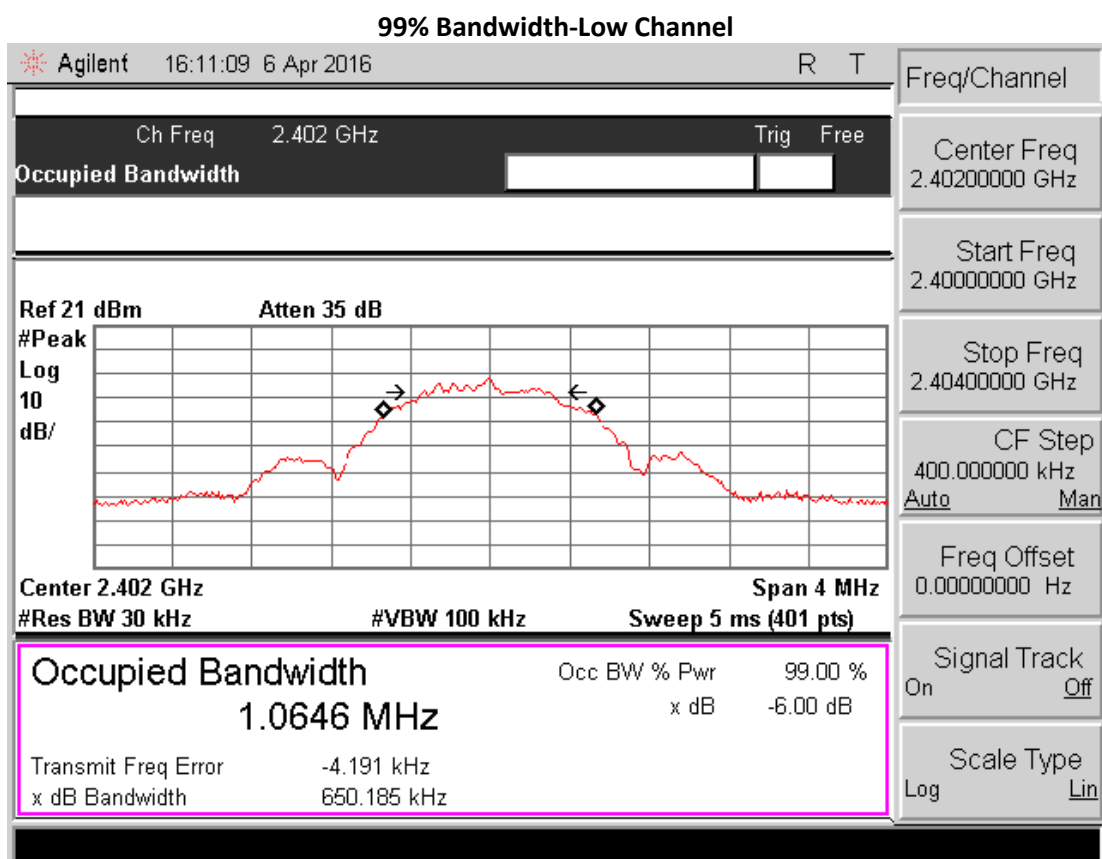
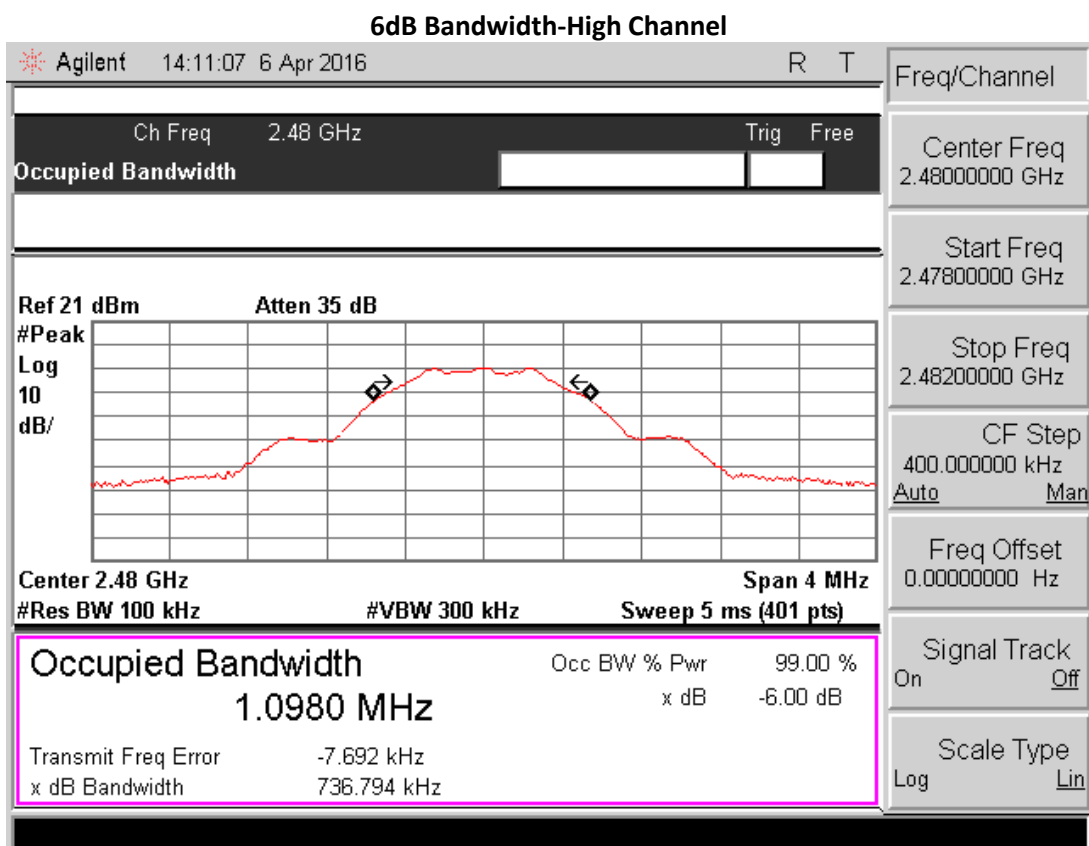
Below table shows the summary of measurements. The measurements were performed using the standard described in section 2.1.1

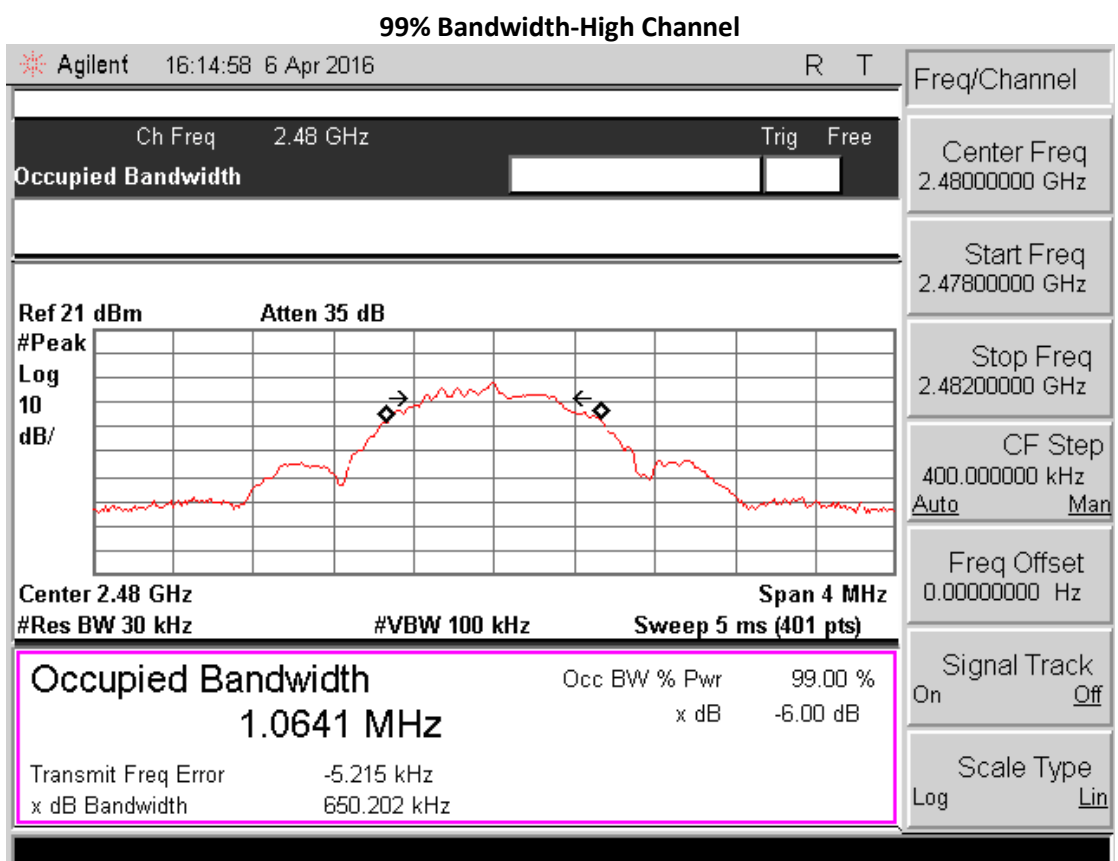
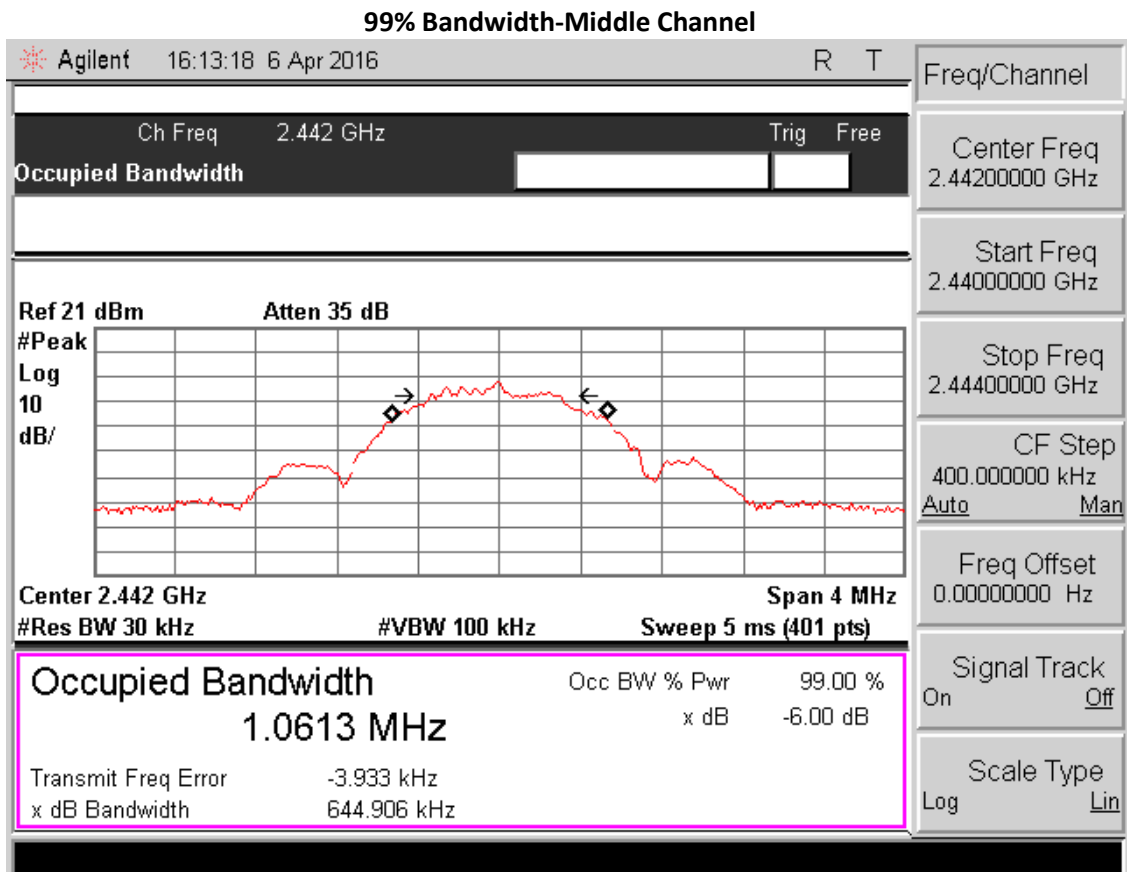
Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
2402	0.734	1.065
2442	0.734	1.061
2480	0.737	1.064

Table 1

Following are the plots from the spectrum Analyzer for 6dB bandwidth and 99% bandwidth.







3.2.1 RF Output Power – FCC Section 15.247 (b)(1), RSS 247 5.4.4

3.2.2 Measurement Procedure

- 4 The peak output power was measured in accordance with the **RSS 247 5.4.4** and the FCC KDB Publication No.558074 V03r02 “Guidance for Performing Compliance Measurements on Digital Transmission Systems (47 CFR 15.247)” Section 9.1.3 Peak Power Meter Method.

Manufacturer	Model	Equipment Type	Serial No.	Last Calibration Date	Calibration Due Date
Agilent	N1911A	Power Meter	MY50150005	12 Jun 15	12 Jun 16
Agilent	N1921A	Power Sensor	MY53160021	23 Jun 15	23 Jun 16

Measurement Result

Below table shows the summary of measured power

Frequency (MHz)	RF Output Power (dBm)
2402	0.75
2442	1.03
2480	0.78

Table 2

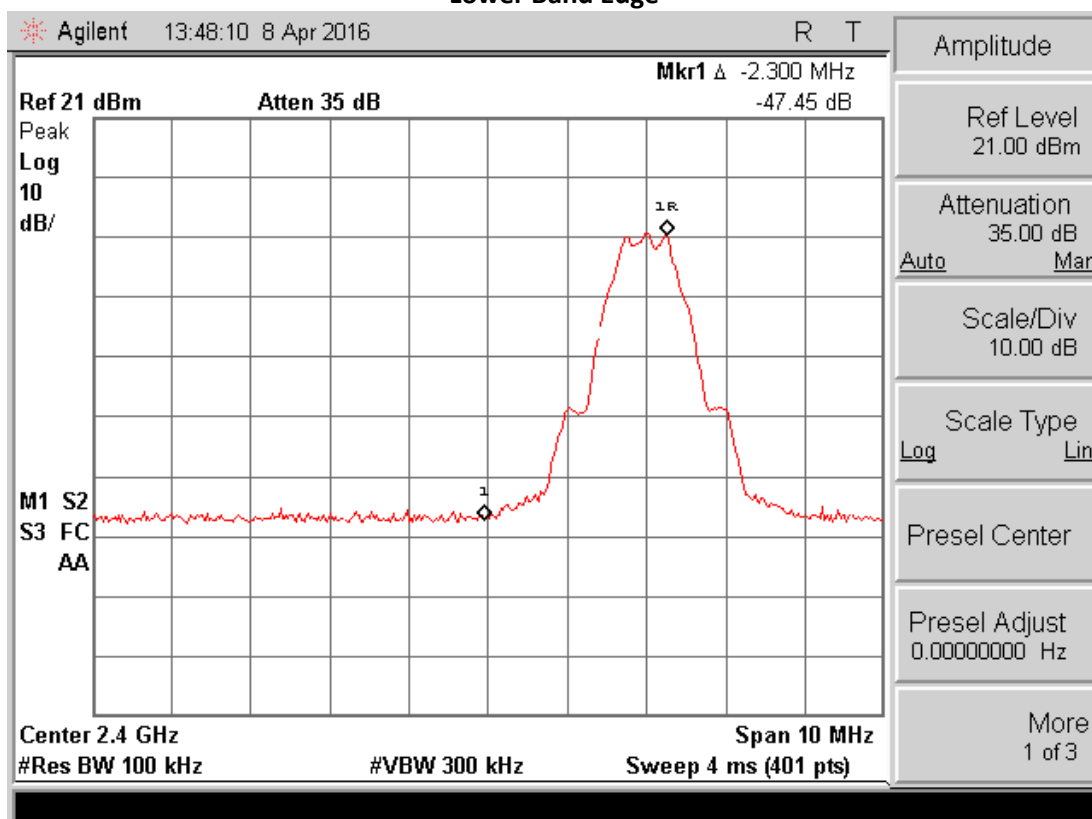
3.3 Band-Edge Compliance of RF Conducted Emissions – FCC Section 15.247(d), *RSS 247 5.5*

3.3.1 Measurement Procedure

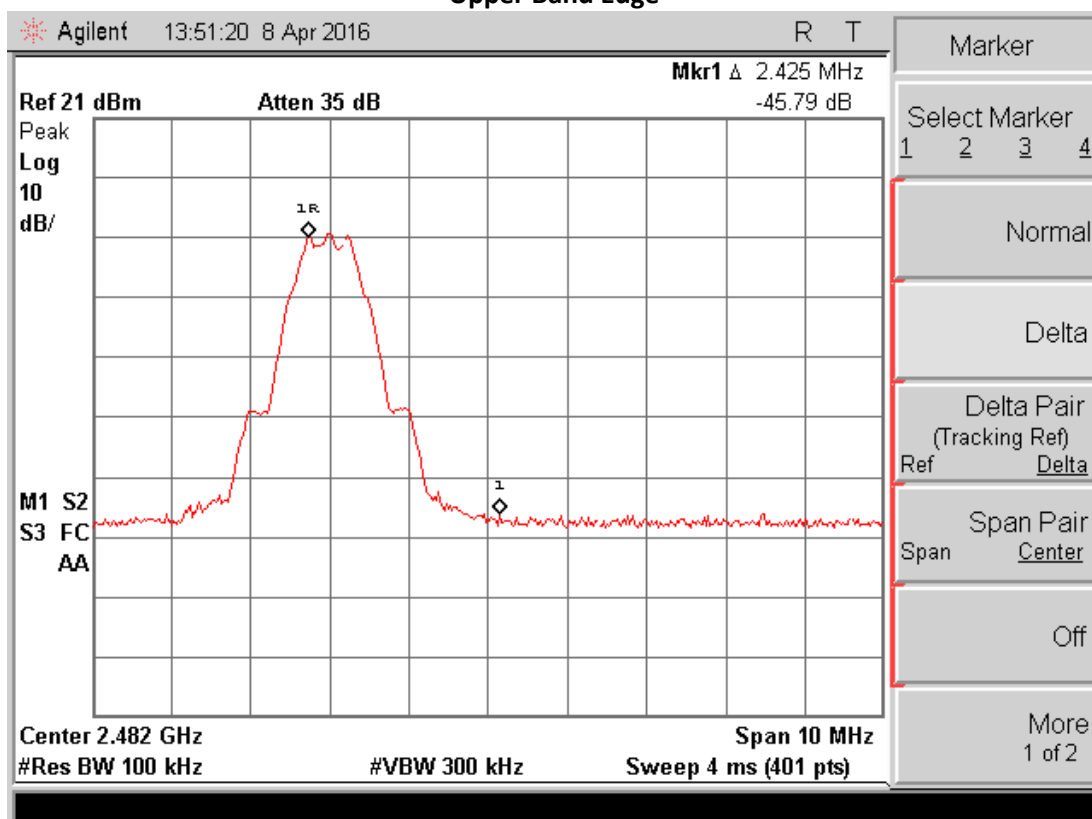
The band-edge measurement was measured in accordance with the **RSS 247 5.5** and the FCC KDB Publication No.558074 V03r02 “Guidance for Performing Compliance Measurements on Digital Transmission Systems (47 CFR 15.247)” Section 13.2 Marker-delta Method. The RF output of the equipment under test was directly connected to the input of the spectrum analyzer through suitable attenuation. The EUT was investigated at the lowest and highest channel available to determine band-edge compliance. The RBW of the spectrum analyzer was set to 100 kHz and VBW 300 kHz. The reference level was determined by measuring the Peak PSD level in any 100 kHz bandwidth within the DTS channel bandwidth.

3.3.2 Measurement Results

Lower Band Edge



Upper Band Edge



3.4 Power Spectral Density – FCC Section 15.247(e) , *RSS 247 5.2.2*

3.4.1 Measurement Procedure

The power spectral density was measured in accordance with the **RSS 247 5.2.2** and the FCC KDB Publication No.558074 V03r02 “Guidance for Performing Compliance Measurements on Digital Transmission Systems (47 CFR 15.247)” Section 10.2 Peak PSD Method. The RBW of the spectrum analyzer was set to 3 kHz and VBW 10 kHz. The peak marker function was used to determine the maximum amplitude level within the RBW.

Span = 1.5 times 6 dB Bandwidth

Spec = 8 dBm/3 KHz

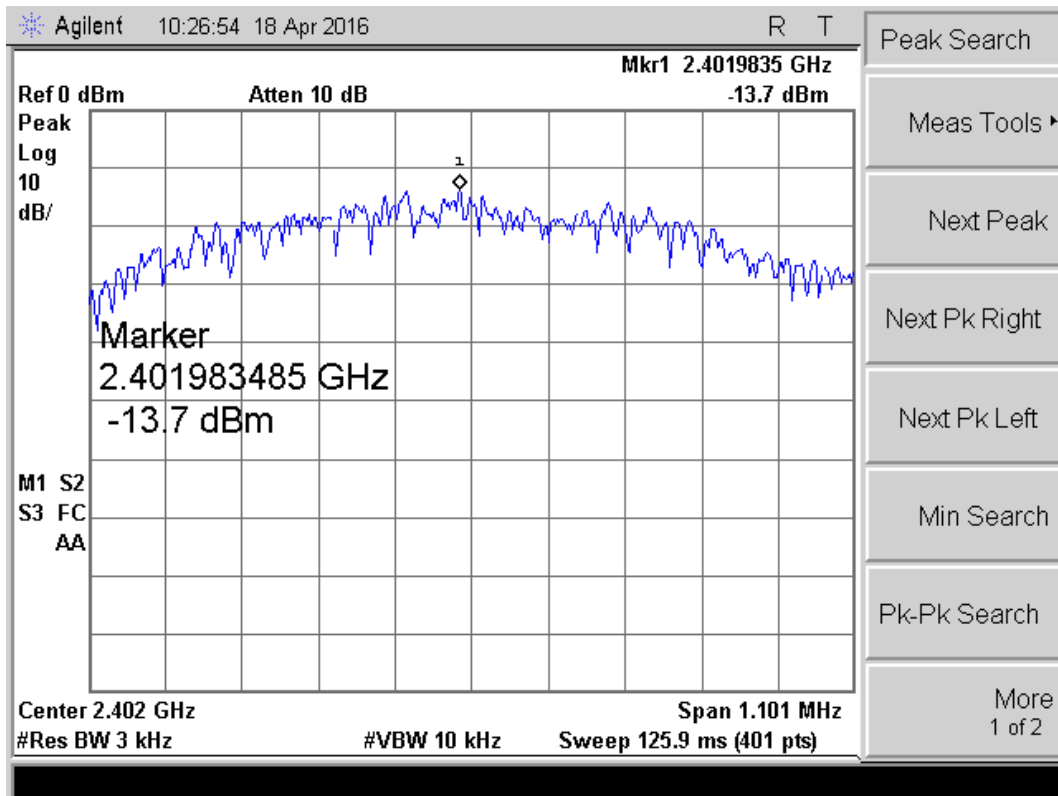
3.4.2 Measurement Result

Frequency (MHz)	PSD/3kHz (dBm)	Limit (dBm)
2402	-13.7	8
2442	-13.63	8
2480	-13.98	8

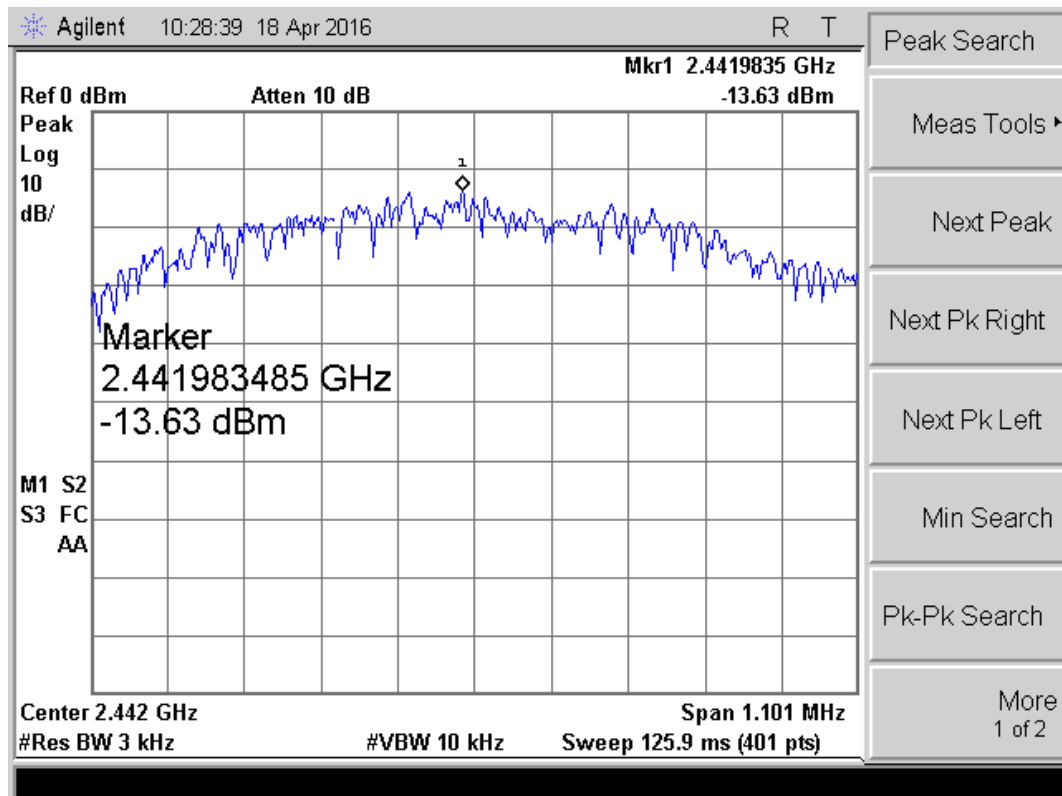
1.5 x 6 dB Bandwidth Span settings for Spectrum Analyzer on the PSD 3 KHz measurement :

Frequency (MHz)	1.5 x 6dB Bandwidth (MHz)
2402	1.101
2442	1.101
2480	1.106

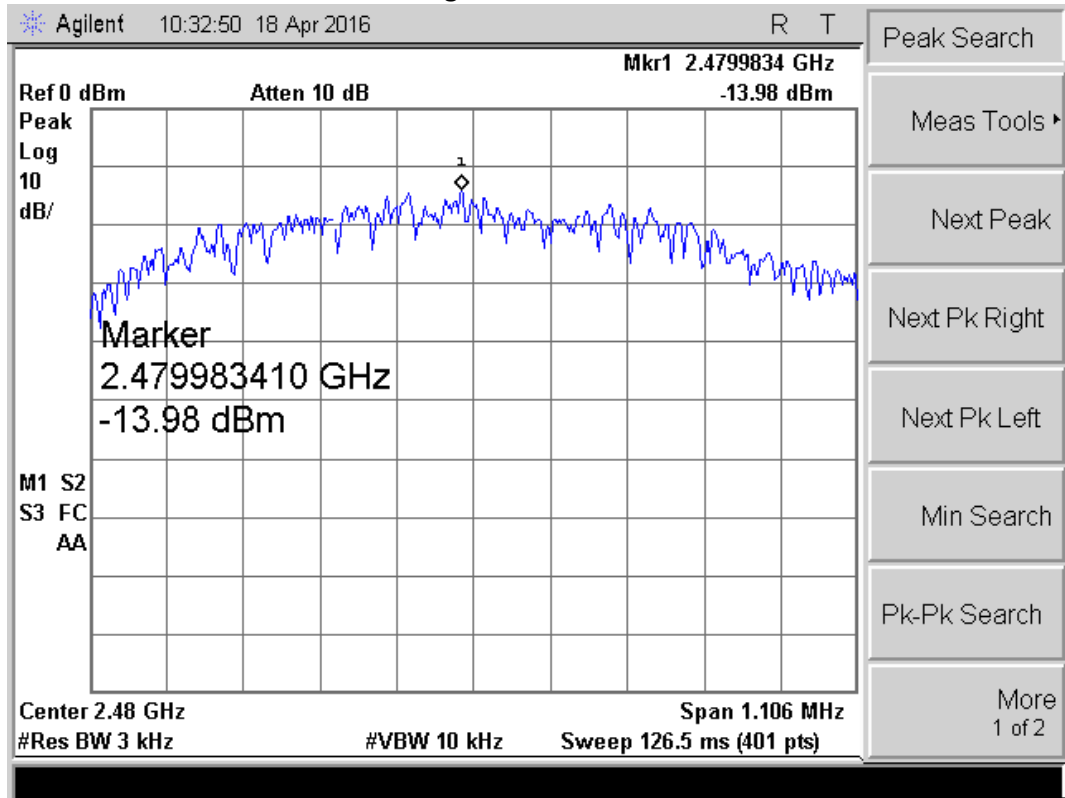
PSD-Low Channel



PSD-Middle Channel



PSD-High Channel



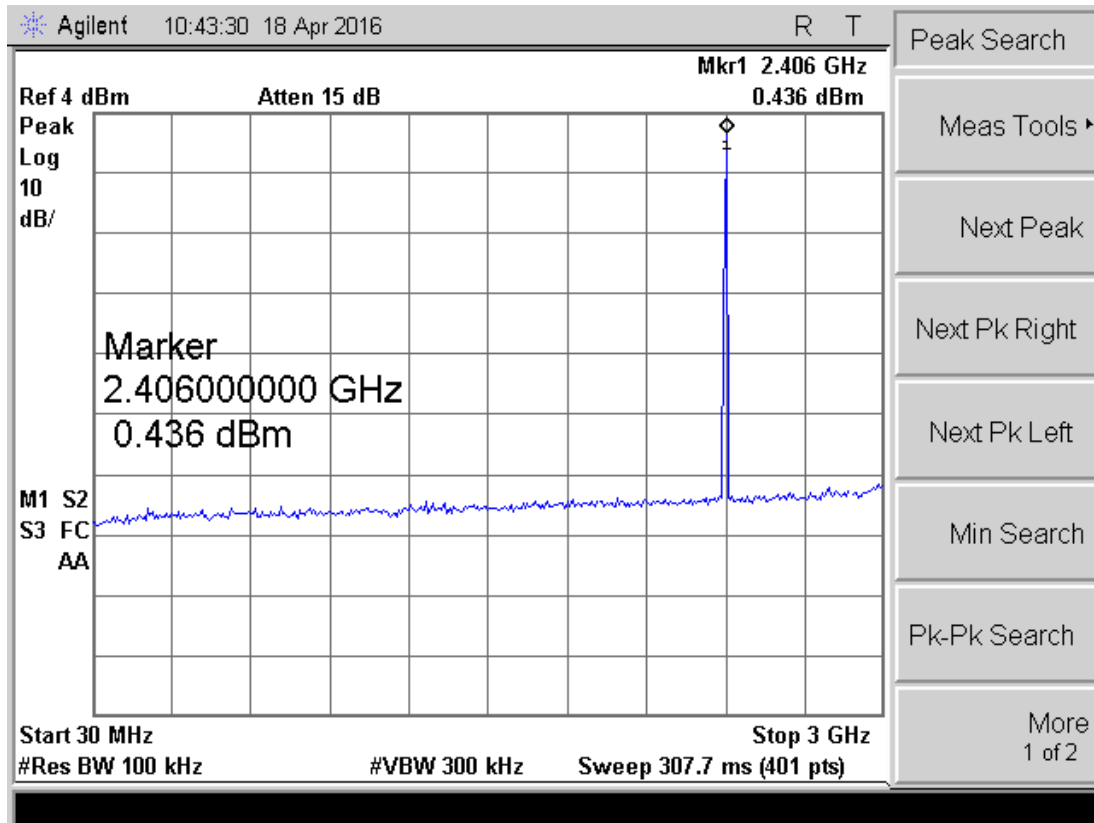
3.5 Conducted Spurious Emissions – FCC Section 15.247(d) , *RSS 247 5.5*

3.5.1 Measurement Procedure

The RF conducted spurious emissions were measured in accordance with the **RSS 247 5.5** and the FCC KDB Publication No.558074 V03r02 “Guidance for Performing Compliance Measurements on Digital Transmission Systems (47 CFR 15.247)”. The RF output of the equipment under test was directly connected to the input of the spectrum analyzer. The EUT was investigated for conducted spurious emissions from 30MHz to 26GHz, 10 times the highest fundamental frequency. Measurements were made at the low, middle and high channels of the EUT. For each measurement, the RBW of the spectrum analyzer was set to 100 kHz and VBW 300 kHz. The reference level was determined by measuring the peak PSD level in any of the 100 kHz bandwidth within the DTS channel bandwidth.

3.5.2 Measurement Result

Low Channel (30MHz to 3GHz)



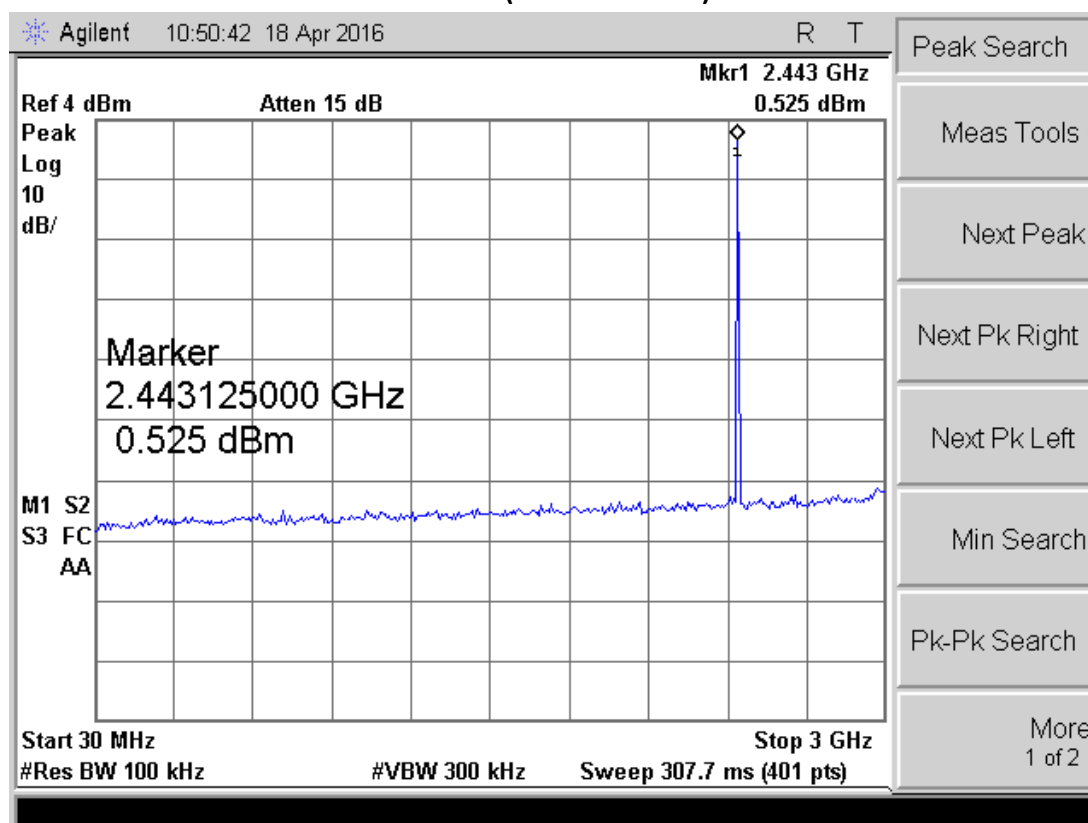
Low Channel (2GHz to 13GHz)



Low Channel (13GHz to 26GHz)



Middle Channel (30MHz to 3GHz)



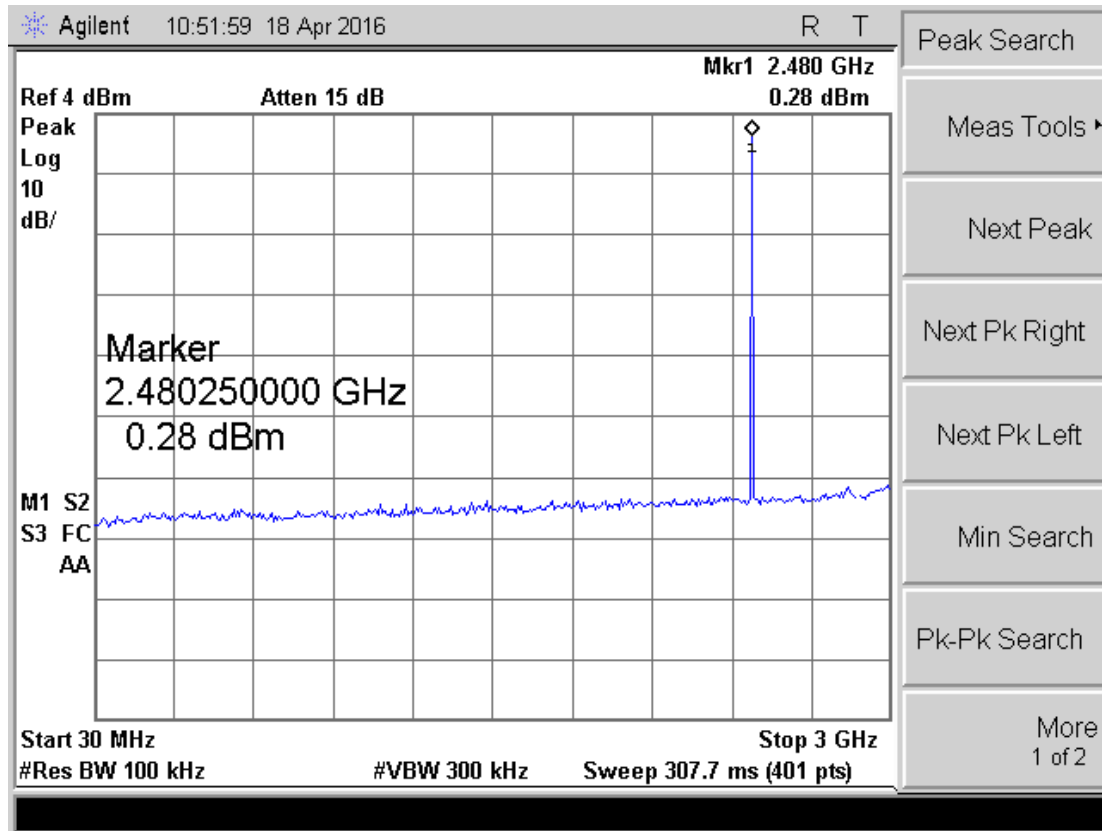
Middle Channel (2GHz to 13GHz)



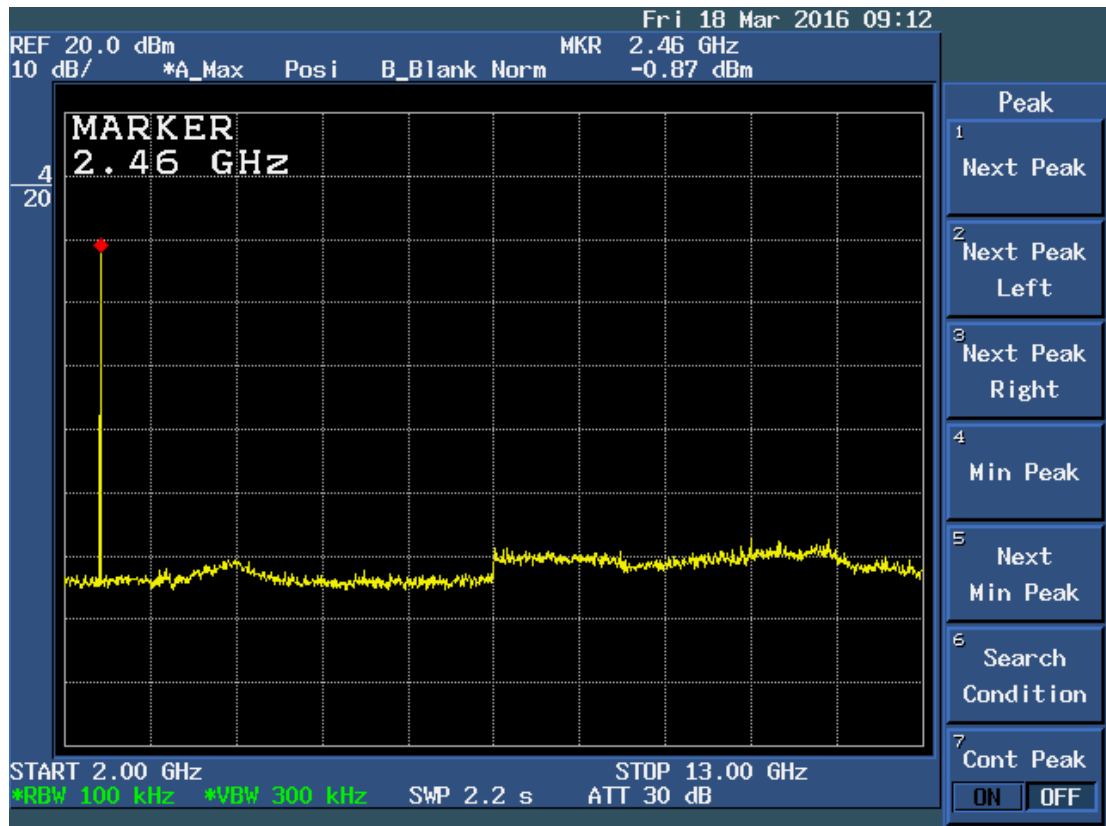
Middle Channel (13GHz to 26GHz)



High Channel (30MHz to 3GHz)



High Channel (2GHz to 13GHz)



High Channel (13GHz to 26GHz)

