EMC TEST REPORT	
TEST REPORT NUMBER	DOJ 1517TEL038-A2
TEST REPORT DATE	14th May 2015
TEST REPORT VERSION	1.0
MANUFACTURER	Gemtek Electronics (ChangSHU) Co.
PRODUCT NAME	5GHz ePMP Integrated Radio and 5GHz ePMP Connectorized Radio
PRODUCT MODEL NO.	C058900P072A, C058900C072A, C058900P062A, C058900C062A
PART NO.	142000001193A
REV	0B
CONDITION OF EUT WHEN RECEIVED	GOOD and in working condition
ISSUED TO	3800 Golf Road, Suite 360 Rolling Meadows, IL 60008. USA +1 888-863-5250
ISSUED BY	**TARANG Lab** Wipro Technologies, SJP2, Survey#70,77,78/8A, Dodda Kanelli, Sarjapur road, Bangalore. Karnataka. India - 560 035 Tel: +91-80-30292929Fax: +91-80-30298200 Email: tarang.planet@wipro.com Web: www.wipro.com

This report should always be reproduced in full. Any extracts of this report is invalid.

AMENDMENT HISTORY

Amendment Number	Amendment Date	Author of Amendment	Previous Report Version	Previous Report Date
Amendment Details				

This report should always be reproduced in full. Any extracts of this report is invalid.

TABLE OF CONTENTS

1 TEST REPORT SUMMARY 9

2 GENERAL INFORMATION 11

2.1 TEST DETAILS 11
2.2 TEST FACILITY DETAILS 11

3 INSTRUMENTATION AND CALIBRATION 12

3.1 TEST AND MEASURING EQUIPMENT 12
3.2 EQUIPMENTS USED 12

4 PRODUCT INFORMATION 13

4.1 DESCRIPTION OF THE PRODUCT 13
4.2 SOFTWARE AND FIRMWARE DETAILS 13
4.3 LIST OF PRODUCT CABLES 16

5 TEST DETAILS 17

5.1 PRODUCT AND TEST SETUP 17
5.1.1 Product Configuration 17
5.1.2 Test Setup Details 17
5.1.3 Accessories 17
5.2 APPLICABLE TESTS 18
5.3 TEST RESULT 19
5.3.1 26 dB Emission Bandwidth measurement 19
5.3.2 99 Percent Occupied Bandwidth measurement 40
5.3.3 Maximum Conducted Output Power 61
5.3.4 Peak Power Spectral Density 84
5.3.5 Peak Excursion ratio 105
5.3.6 Unwanted Emissions levels-Conducted Band edge 125

APPENDIX I – ACRONYMS 151

This report should always be reproduced in full. Any extracts of this report is invalid.

LIST OF FIGURES

Figure 1: Block Diagram of the EUT test setup during the tests 17
Figure 2: Typical test setup for Conducted RF Test setup 19
Figure 3: 26dB Bandwidth measured at ch0 21
Figure 4: 26dB Bandwidth measured at ch1 21
Figure 5: 26dB Bandwidth measured at ch0 22
Figure 6: 26dB Bandwidth measured at ch1 22
Figure 7: 26dB Bandwidth measured at ch0 23
Figure 8: 26dB Bandwidth measured at ch1 23
Figure 9: 26dB Bandwidth measured at ch0 24
Figure 10: 26dB Bandwidth measured at ch1 24
Figure 11: 26dB Bandwidth measured at ch0 25
Figure 12: 26dB Bandwidth measured at ch1 25
Figure 13: 26dB Bandwidth measured at ch0 26
Figure 14: 26dB Bandwidth measured at ch1 26
Figure 15: 26dB Bandwidth measured at ch0 27
Figure 16: 26dB Bandwidth measured at ch1 27
Figure 17: 26dB Bandwidth measured at ch0 28
Figure 18: 26dB Bandwidth measured at ch1 28
Figure 19: 26dB Bandwidth measured at ch0 29
Figure 20: 26dB Bandwidth measured at ch1 29
Figure 21: 26dB Bandwidth measured at ch0 30
Figure 22: 26dB Bandwidth measured at ch1 30
Figure 23: 26dB Bandwidth measured at ch0 31
Figure 24: 26dB Bandwidth measured at ch1 31
Figure 25: 26dB Bandwidth measured at ch0 32
Figure 26: 26dB Bandwidth measured at ch1 32
Figure 27: 26dB Bandwidth measured at ch0 33
Figure 28: 26dB Bandwidth measured at ch1 33
Figure 29: 26dB Bandwidth measured at ch0 34
Figure 30: 26dB Bandwidth measured at ch1 34
Figure 31: 26dB Bandwidth measured at ch0 35
Figure 32: 26dB Bandwidth measured at ch1 35
Figure 33: 26dB Bandwidth measured at ch0 36
Figure 34: 26dB Bandwidth measured at ch1 36
Figure 35: 26dB Bandwidth measured at ch0 37
Figure 36: 26dB Bandwidth measured at ch1 37
Figure 37: 26dB Bandwidth measured at ch0 38
Figure 38: 26dB Bandwidth measured at ch1 38
Figure 39: Typical test setup for Conducted RF Test setup 40
Figure 40: 99 Percent OBW measured at ch.0 42
Figure 41: 99 Percent OBW measured at ch.1 42
Figure 42: 99 Percent OBW measured at ch.0 43
Figure 43: 99 Percent OBW measured at ch.1 43
Figure 44: 99 Percent OBW measured at ch.0 44
Figure 45: 99 Percent OBW measured at ch.1 44
Figure 46: 99 Percent OBW measured at ch.0 45
Figure 47: 99 Percent OBW measured at ch.1 45
Figure 48: 99 Percent OBW measured at ch.0 46

This report should always be reproduced in full. Any extracts of this report is invalid.

Figure 49: 99 Percent OBW measured at ch.1 46
Figure 50: 99 Percent OBW measured at ch.0 47
Figure 51: 99 Percent OBW measured at ch.1 47
Figure 52: 99 Percent OBW measured at ch.0 48
Figure 53: 99 Percent OBW measured at ch.1 48
Figure 54: 99 Percent OBW measured at ch.0 49
Figure 55: 99 Percent OBW measured at ch.1 49
Figure 56: 99 Percent OBW measured at ch.0 50
Figure 57: 99 Percent OBW measured at ch.1 50
Figure 58: 99 Percent OBW measured at ch.0 51
Figure 59: 99 Percent OBW measured at ch.1 51
Figure 60: 99 Percent OBW measured at ch.0 52
Figure 61: 99 Percent OBW measured at ch.1 52
Figure 62: 99 Percent OBW measured at ch.0 53
Figure 63: 99 Percent OBW measured at ch.1 53
Figure 64: 99 Percent OBW measured at ch.0 54
Figure 65: 99 Percent OBW measured at ch.1 54
Figure 66: 99 Percent OBW measured at ch.0 55
Figure 67: 99 Percent OBW measured at ch.1 55
Figure 68: 99 Percent OBW measured at ch.0 56
Figure 69: 99 Percent OBW measured at ch.1 56
Figure 70: 99 Percent OBW measured at ch.0 57
Figure 71: 99 Percent OBW measured at ch.1 57
Figure 72: 99 Percent OBW measured at ch.0 58
Figure 73: 99 Percent OBW measured at ch.1 58
Figure 74: 99 Percent OBW measured at ch.0 59
Figure 75: 99 Percent OBW measured at ch.1 59
Figure 76: Typical test setup for Conducted RF Test setup 62
Figure 77: Maximum Conducted Output power measured at ch.0 63
Figure 78: Maximum Conducted Output power measured at ch.1 63
Figure 79: Maximum Conducted Output power measured at ch.0 64
Figure 80: Maximum Conducted Output power measured at ch.1 64
Figure 81: Maximum Conducted Output power measured at ch.0 65
Figure 82: Maximum Conducted Output power measured at ch.1 65
Figure 83: Maximum Conducted Output power measured at ch.0 66
Figure 84: Maximum Conducted Output power measured at ch.1 66
Figure 85: Maximum Conducted Output power measured at ch.0 67
Figure 86: Maximum Conducted Output power measured at ch.1 67
Figure 87: Maximum Conducted Output power measured at ch.0 68
Figure 88: Maximum Conducted Output power measured at ch.1 68
Figure 89: Maximum Conducted Output power measured at ch.0 69
Figure 90: Maximum Conducted Output power measured at ch.1 69
Figure 91: Maximum Conducted Output power measured at ch.0 70
Figure 92: Maximum Conducted Output power measured at ch.1 70
Figure 93: Maximum Conducted Output power measured at ch.0 71
Figure 94: Maximum Conducted Output power measured at ch.1 71
Figure 95: Maximum Conducted Output power measured at ch.0 72
Figure 96: Maximum Conducted Output power measured at ch.1 72
Figure 97: Maximum Conducted Output power measured at ch.0 73

This report should always be reproduced in full. Any extracts of this report is invalid.

Figure 98: Maximum Conducted Output power measured at ch.1 73
Figure 99: Maximum Conducted Output power measured at ch.0 74
Figure 100: Maximum Conducted Output power measured at ch.1 74
Figure 101: Maximum Conducted Output power measured at ch.0 75
Figure 102: Maximum Conducted Output power measured at ch.1 75
Figure 103: Maximum Conducted Output power measured at ch.0 76
Figure 104: Maximum Conducted Output power measured at ch.1 76
Figure 105: Maximum Conducted Output power measured at ch.0 77
Figure 106: Maximum Conducted Output power measured at ch.1 77
Figure 107: Maximum Conducted Output power measured at ch.0 78
Figure 108: Maximum Conducted Output power measured at ch.1 78
Figure 109: Maximum Conducted Output power measured at ch.0 79
Figure 110: Maximum Conducted Output power measured at ch.1 79
Figure 111: Maximum Conducted Output power measured at ch.0 80
Figure 112: Maximum Conducted Output power measured at ch.1 80
Figure 113: Typical test setup for Conducted Test setup....84
Figure 114: Power Spectral density measured at Ch. 0 86
Figure 115: Power Spectral density measured at Ch. 1 86
Figure 116: Power Spectral density measured at Ch. 0 87
Figure 117: Power Spectral density measured at Ch. 1 87
Figure 118: Power Spectral density measured at Ch. 0 88
Figure 119: Power Spectral density measured at Ch. 1 88
Figure 120: Power Spectral density measured at Ch. 0 89
Figure 121: Power Spectral density measured at Ch. 1 89
Figure 122: Power Spectral density measured at Ch. 0 90
Figure 123: Power Spectral density measured at Ch. 1 90
Figure 124: Power Spectral density measured at Ch. 0 91
Figure 125: Power Spectral density measured at Ch. 1 91
Figure 126: Power Spectral density measured at Ch. 0 92
Figure 127: Power Spectral density measured at Ch. 1 92
Figure 128: Power Spectral density measured at Ch. 0 93
Figure 129: Power Spectral density measured at Ch. 1 93
Figure 130: Power Spectral density measured at Ch. 0 94
Figure 131: Power Spectral density measured at Ch. 1 94
Figure 132: Power Spectral density measured at Ch. 0 95
Figure 133: Power Spectral density measured at Ch. 1 95
Figure 134: Power Spectral density measured at Ch. 0 96
Figure 135: Power Spectral density measured at Ch. 1 96
Figure 136: Power Spectral density measured at Ch. 0 97
Figure 137: Power Spectral density measured at Ch. 1 97
Figure 138: Power Spectral density measured at Ch. 0 98
Figure 139: Power Spectral density measured at Ch. 1 98
Figure 140: Power Spectral density measured at Ch. 0 99
Figure 141: Power Spectral density measured at Ch. 1 99
Figure 142: Power Spectral density measured at Ch. 0 100
Figure 143: Power Spectral density measured at Ch. 1 100
Figure 144: Power Spectral density measured at Ch. 0 101
Figure 145: Power Spectral density measured at Ch. 1 101
Figure 146: Power Spectral density measured at Ch. 0 102

This report should always be reproduced in full. Any extracts of this report is invalid.

Figure 147: Power Spectral density measured at Ch. 1 102
Figure 148: Power Spectral density measured at Ch. 0 103
Figure 149: Power Spectral density measured at Ch. 1 103
Figure 150: Typical test setup for Conducted Test setup 105
Figure 151: Peak Excursion Ratio plot measured at Ch. 0 106
Figure 152: Peak Excursion Ratio plot measured at Ch. 1 106
Figure 153: Peak Excursion Ratio plot measured at Ch. 0 107
Figure 154: Peak Excursion Ratio plot measured at Ch. 1 107
Figure 155: Peak Excursion Ratio plot measured at Ch. 0 108
Figure 156: Peak Excursion Ratio plot measured at Ch. 1 108
Figure 157: Peak Excursion Ratio plot measured at Ch. 0 109
Figure 158: Peak Excursion Ratio plot measured at Ch. 1 109
Figure 159: Peak Excursion Ratio plot measured at Ch. 0 110
Figure 160: Peak Excursion Ratio plot measured at Ch. 1 110
Figure 161: Peak Excursion Ratio plot measured at Ch. 0 111
Figure 162: Peak Excursion Ratio plot measured at Ch. 1 111
Figure 163: Peak Excursion Ratio plot measured at Ch. 0 112
Figure 164: Peak Excursion Ratio plot measured at Ch. 1 112
Figure 165: Peak Excursion Ratio plot measured at Ch. 0 113
Figure 166: Peak Excursion Ratio plot measured at Ch. 1 113
Figure 167: Peak Excursion Ratio plot measured at Ch. 0 114
Figure 168: Peak Excursion Ratio plot measured at Ch. 1 114
Figure 169: Peak Excursion Ratio plot measured at Ch. 0 115
Figure 170: Peak Excursion Ratio plot measured at Ch. 1 115
Figure 171: Peak Excursion Ratio plot measured at Ch. 0 116
Figure 172: Peak Excursion Ratio plot measured at Ch. 1 116
Figure 173: Peak Excursion Ratio plot measured at Ch. 0 117
Figure 174: Peak Excursion Ratio plot measured at Ch. 1 117
Figure 175: Peak Excursion Ratio plot measured at Ch. 0 118
Figure 176: Peak Excursion Ratio plot measured at Ch. 1 118
Figure 177: Peak Excursion Ratio plot measured at Ch. 0 119
Figure 178: Peak Excursion Ratio plot measured at Ch. 1 119
Figure 179: Peak Excursion Ratio plot measured at Ch. 0 120
Figure 180: Peak Excursion Ratio plot measured at Ch. 1 120
Figure 181: Peak Excursion Ratio plot measured at Ch. 0 121
Figure 182: Peak Excursion Ratio plot measured at Ch. 1 121
Figure 183: Peak Excursion Ratio plot measured at Ch. 0 122
Figure 184: Peak Excursion Ratio plot measured at Ch. 1 122
Figure 185: Peak Excursion Ratio plot measured at Ch. 0 123
Figure 186: Peak Excursion Ratio plot measured at Ch. 1 123
Figure 187: Typical test setup for Conducted Test setup 125
Figure 188: Band edge measured at Ch. 0-Avg 127
Figure 189: Band edge measured at Ch. 0-Peak 127
Figure 190: Band edge measured at Ch. 1-Avg 128
Figure 191: Band edge measured at Ch. 1-Peak 128
Figure 192: Band edge measured at Ch. 0-Avg 129
Figure 193: Band edge measured at Ch. 0-Peak 129
Figure 194: Band edge measured at Ch. 1-Avg 130
Figure 195: Band edge measured at Ch. 1-Peak 130

This report should always be reproduced in full. Any extracts of this report is invalid.

Figure 196: Band edge measured at Ch. 0-Avg 131
Figure 197: Band edge measured at Ch. 0-Peak 131
Figure 198: Band edge measured at Ch. 1-Avg 132
Figure 199: Band edge measured at Ch. 1-Peak 132
Figure 200: Band edge measured at Ch. 0-Avg 133
Figure 201: Band edge measured at Ch. 0-Peak 133
Figure 202: Band edge measured at Ch. 1-Avg 134
Figure 203: Band edge measured at Ch. 1-Peak 134
Figure 204: Band edge measured at Ch. 0-Avg 135
Figure 205: Band edge measured at Ch. 0-Peak. 135
Figure 206: Band edge measured at Ch. 1-Avg 136
Figure 207: Band edge measured at Ch. 1-Peak 136
Figure 208: Band edge measured at Ch. 0-Avg 137
Figure 209: Band edge measured at Ch. 0-Peak 137
Figure 210: Band edge measured at Ch. 1-Avg 138
Figure 211: Band edge measured at Ch. 1-Peak 138
Figure 212: Band edge measured at Ch. 0-Avg 139
Figure 213: Band edge measured at Ch. 0-Peak 139
Figure 214: Band edge measured at Ch. 1-Avg 140
Figure 215: Band edge measured at Ch. 1-Peak 140
Figure 216: Band edge measured at Ch. 0-Avg 141
Figure 217: Band edge measured at Ch. 0-Peak 141
Figure 218: Band edge measured at Ch. 1-Avg 142
Figure 219: Band edge measured at Ch. 1-Peak 142
Figure 220: Band edge measured at Ch. 0-Avg 143
Figure 221: Band edge measured at Ch. 0-Peak 143
Figure 222: Band edge measured at Ch. 1-Avg 144
Figure 223: Band edge measured at Ch. 1-Peak 144
Figure 224: Band edge measured at Ch. 0-Avg 145
Figure 225: Band edge measured at Ch. 0-Peak 145
Figure 226: Band edge measured at Ch. 1-Avg 146
Figure 227: Band edge measured at Ch. 1-Peak 146
Figure 228: Band edge measured at Ch. 0-Avg 147
Figure 229: Band edge measured at Ch. 0-Peak 147
Figure 230: Band edge measured at Ch. 1-Avg 148
Figure 231: Band edge measured at Ch. 1-Peak 148
Figure 232: Band edge measured at Ch. 0-Avg 149
Figure 233: Band edge measured at Ch. 0-Peak 149
Figure 234: Band edge measured at Ch. 1-Avg 150
Figure 235: Band edge measured at Ch. 1-Peak 150

This report should always be reproduced in full. Any extracts of this report is invalid.

1 TEST REPORT SUMMARY

Applicant	Cambium Networks			
Manufacturer	Gemtek Electronics (ChangSHU) Co.			
Equipment Under Test	5GHz ePMP Integrated Radio and 5GHz ePMP Connectorized Radio			
Model	C058900P072A, C058900C072A, C058900P062A, C058900C062A			
Serial number	**Type of test**	**Serial no.**	**Wi-Fi MAC**	**Ethernet MAC**
	Radiated& Conducted	AE50013121	000456F802AD	000456F802AC
Date of Submission	05th May 2015			
Date of Test	05th May 2015 to 12th May 2015			
Venue of Test	Tarang Lab			

Applicable Standard	**FCC Section**	**Description**	**Results**
47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C; RSS-Gen, Issue 4, Nov 2014 RSS-210, Issue 8, Dec 2010	§15.403 (h) (i)	26 dB Emission Bandwidth measurement	NA
	NA	99 Percent Occupied Bandwidth	NA
	§15.407 (a) (2)	Maximum Conducted Output Power	PASS
	§15.407 (a) (2)	Peak Power Spectral Density	PASS
	§15.407 (a) (6)	Peak Excursion Ratio	PASS
	§15.407 (b) (3)	Unwanted emission levels-Conducted Band edge	PASS

This report should always be reproduced in full. Any extracts of this report is invalid.

5GHz ePMP Integrated Radio and 5GHz ePMP Connectorized Radio was tested by Tarang Lab as per the standards that are listed in the table above. Based on the observations during the test and interpretations by Tarang lab, results have been indicated. The test results produced in this report shall apply only to the above sample that have been tested under the specific conditions and modes of testing as described in the report. Other similar equipment may not necessarily reproduce same result due to production tolerances and measurement uncertainties. Any measurement uncertainties listed in this report are for information purpose only.

The results shall stand invalid, in case there are any modifications / additions / removals to the hardware or software or end use atmosphere to the product tested. This report shall not be modified or in any way revised unless it is expressly permitted and endorsed by Tarang lab, through a duly authorized representative. Particulars on Manufacturer / Supplier / Product configuration / performance criteria, given in this report, are based on the information given by the customer, along with test request. Tarang does not assume any responsibility for the correctness of such information for the above mentioned equipment under test.

Customer acknowledges that this is a test report and not a certificate to gain market access for the product. To gain market access, Customer needs appropriate clearance from the Government or authorized agency for the target market. For markets that allow self-declaration, customer needs to follow the procedure defined by the target market.

Prepared by	Reviewed by	Approved by
Subhendu	Harsha Sainath	Rajneesh R
Test Engineer	Test Engineer	Functional Head

2 GENERAL INFORMATION

2.1 TEST DETAILS

The tests documented in this report are performed according to the following standards:

- ANSI C63.10-2013
- 47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C
- RSS-Gen, Issue 4, Nov 2014
- RSS-210, Issue 8, Dec 2010

2.2 TEST FACILITY DETAILS

All the tests were carried out at Tarang –Product Qualification and Compliance Planet located at Wipro Limited, SJP2, Dodda Kanelli, Sarjapur road, Bangalore, Karnataka, India. 560035.

Following are the accreditation and listing details for Tarang.

Accreditation / Listing body	Registration / Company / Certificate Number
ISO 17025 Accreditation	Certificate Number :T-1533 and T-1534 (NABL) http://www.nabl-india.org
FCC (Federal Communications Commission)	Registration Number: 799247 http://www.fcc.gov/
IC (Industry Canada)	Company Number: 9023A http://www.ic.gc.ca
TEC Approval	Certificate Number: TEC/MRA/CAB/IND-D/3 CAB Identification: IND003
DGAQA Approval	1415/F-15/DGAQA/Aircraft
CEMILAC approval	Certificate Number: F-07-22 Reference Number: CEMILAC/6042/TH-13/TC & S

3 INSTRUMENTATION AND CALIBRATION

3.1 TEST AND MEASURING EQUIPMENT

The list of following measuring equipment used for this testing conforms to the applicable standards. Performance of all test and measuring equipment including any accessories are checked periodically to ensure accuracy.

3.2 EQUIPMENTS USED

Name of Equipment	Manufacturer	Model No	Serial No	Calibration Due
EMI Test Receiver	R&S	ESIB40	100306	07th Oct 2015
Spectrum Analyzer	Agilent Technologies	E4407B	MY45112948	02nd Apr 2016
X-Series USB Peak & Average Power Sensor	Keysight Technologies	U2021XA	MY55050002	08th Feb 2016
X-Series USB Peak & Average Power Sensor	Keysight Technologies	U2021XA	MY55050001	08th Feb 2016
Tunable Band reject/Notch filter	Wainwright Instruments GmbH	WTRCJV8-5150-5850-40-160-50SSK	01	NA

This report should always be reproduced in full. Any extracts of this report is invalid.

4 PRODUCT INFORMATION

4.1 DESCRIPTION OF THE PRODUCT

EUT is a Point to point & Point to Multipoint Fixed outdoor Transceiver.

Product Category / Type of Equipment	TEL (Telecom)
EUT Operating AC Voltage	120V AC
Max EUT AC Operating Current	0.5A
Max EUT AC Power Rating	60W
EUT Operating DC Voltage	30V DC
Max EUT DC Operating Current	0.5A
Max EUT DC Power Rating	12W

4.2 SOFTWARE AND FIRMWARE DETAILS

The 5GHz ePMP Integrated Radio and 5GHz ePMP Connectorized Radio was configured with test software and configured to have the following settings during the course of testing:

- 40MHz modulation bandwidth for low Channel (CH 0)
  - Rate - HT40,
  - 54Mbps OFDM, MCS15:270Mbps
  - Interframe spacing is tx100
  - Tx gain is 82 for 2.15dBi antenna configuration
  - Tx gain is 55 for 17dBi antenna configuration
  - Tx gain is 39 for 24dBi antenna configuration

- 40MHz modulation bandwidth for low Channel (CH 1)
  - Rate - HT40,
  - 54Mbps OFDM, MCS15:270Mbps
  - Interframe spacing is tx100
  - Tx gain is 87 for 2.15dBi antenna configuration
  - Tx gain is 60 for 17dBi antenna configuration
  - Tx gain is 43 for 24dBi antenna configuration

- 40MHz modulation bandwidth for Mid Channel (CH 0)
  - Rate - HT40,
  - 54Mbps OFDM, MCS15:270Mbps
  - Interframe spacing is tx100
  - Tx gain is 103 for 2.15dBi antenna configuration
  - Tx gain is 81 for 17dBi antenna configuration
  - Tx gain is 64 for 24dBi antenna configuration

This report should always be reproduced in full. Any extracts of this report is invalid.

- 40MHz modulation bandwidth for Mid Channel (CH 1)
    - Rate - HT40,
    - 54Mbps OFDM, MCS15:270Mbps
    - Interframe spacing is tx100
    - Tx gain is 110 for 2.15dBi antenna configuration
    - Tx gain is 88 for 17dBi antenna configuration
    - Tx gain is 75 for 24dBi antenna configuration

- 40MHz modulation bandwidth for High Channel (CH 0)
    - Rate - HT40,
    - 54Mbps OFDM, MCS15:270Mbps
    - Interframe spacing is tx100
    - Tx gain is 79 for 2.15dBi antenna configuration
    - Tx gain is 48 for 17dBi antenna configuration
    - Tx gain is 33 for 24dBi antenna configuration

- 40MHz modulation bandwidth for High Channel (CH 1)
    - Rate - HT40,
    - 54Mbps OFDM, MCS15:270Mbps
    - Interframe spacing is tx100
    - Tx gain is 87 for 2.15dBi antenna configuration
    - Tx gain is 55 for 17dBi antenna configuration
    - Tx gain is 40 for 24dBi antenna configuration

- 10MHz modulation bandwidth for low Channel (CH 0)
    - Rate – HT20,
    - 54Mbps OFDM, MCS15:130Mbps
    - Interframe spacing is tx100
    - Tx gain is 93 for 2.15dBi antenna configuration
    - Tx gain is 75 for 17dBi antenna configuration
    - Tx gain is 63 for 24dBi antenna configuration

- 10MHz modulation bandwidth for low Channel (CH 1)
    - Rate – HT20,
    - 54Mbps OFDM, MCS15:130Mbps
    - Interframe spacing is tx100
    - Tx gain is 96 for 2.15dBi antenna configuration
    - Tx gain is 82 for 17dBi antenna configuration
    - Tx gain is 64 for 24dBi antenna configuration

- 10MHz modulation bandwidth for Mid Channel (CH 0)
    - Rate – HT20,
    - 54Mbps OFDM, MCS15:130Mbps
    - Interframe spacing is tx100
    - Tx gain is 100 for 2.15dBi antenna configuration
    - Tx gain is 78 for 17dBi antenna configuration
    - Tx gain is 64 for 24dBi antenna configuration

- 10MHz modulation bandwidth for Mid Channel (CH 1)
    - Rate – HT20,
    - 54Mbps OFDM, MCS15:130Mbps
    - Interframe spacing is tx100
    - Tx gain is 100 for 2.15dBi antenna configuration
    - Tx gain is 83 for 17dBi antenna configuration
    - Tx gain is 69 for 24dBi antenna configuration

- 10MHz modulation bandwidth for High Channel (CH 0)
    - Rate – HT20,
    - 54Mbps OFDM, MCS15:130Mbps
    - Interframe spacing is tx100
    - Tx gain is 97 for 2.15dBi antenna configuration
    - Tx gain is 75 for 17dBi antenna configuration
    - Tx gain is 62 for 24dBi antenna configuration

- 10MHz modulation bandwidth for High Channel (CH 1)
    - Rate – HT20,
    - 54Mbps OFDM, MCS15:130Mbps
    - Interframe spacing is tx100
    - Tx gain is 103 for 2.15dBi antenna configuration
    - Tx gain is 80 for 17dBi antenna configuration
    - Tx gain is 61 for 24dBi antenna configuration

The unit was continuously monitored for transmission using an auxiliary antenna during the radiated tests

This report should always be reproduced in full. Any extracts of this report is invalid.

4.3 LIST OF PRODUCT CABLES

Cable No.	Cable Name	Cable Length	Power / Interconnection cable	Shielded / Unshielded
Cable - 1	Cat. 5E_Ethernet cable	0.5 meter	Interconnection	Unshielded
Cable - 2	Cat. 5E_Ethernet cable	2 meter	Interconnection	Unshielded
Cable - 3	RF cable (50 Ω)	0.125 meter	Interconnection	Shielded
Cable - 4	Power Cord	0.8 meter	Power	Unshielded

This report should always be reproduced in full. Any extracts of this report is invalid.

5 TEST DETAILS

5.1 PRODUCT AND TEST SETUP

5.1.1 PRODUCT CONFIGURATION

The EUT was powered through AC power supply (120VAC / 60Hz). The EUT was connected to Ethernet switch by using RJ45 cable. Figure 1 shows the product configuration during the tests. Following power supply module was used during the test to power ON the EUT.

Name of the Equipment	Manufacturer	Model Number	Serial Number
Switching Power Supply Gigabit Compatible	PHIHONG	PSA15M-300 (AP)	N000900L001A

5.1.2 TEST SETUP DETAILS

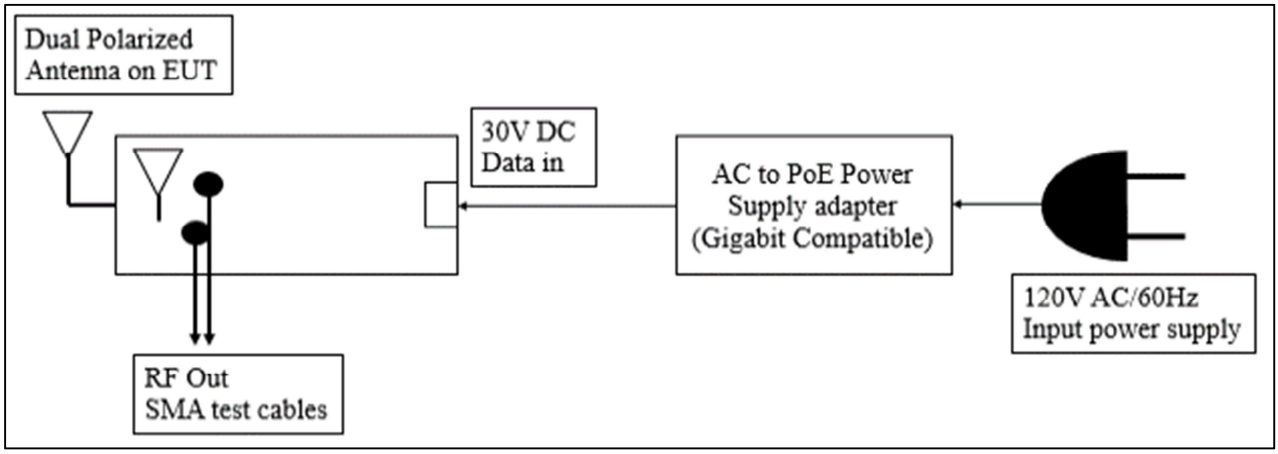

Figure 1: Block Diagram of the EUT test setup during the tests

5.1.3 ACCESSORIES

Name of the Equipment	Manufacturer	Model Number	Serial Number
Laptop	Wipro Technologies Ltd	WLG7E1100	1221

5.2 APPLICABLE TESTS

Applicable Standard	Description	Test level / Test Voltage	Applicability
47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C; RSS-Gen, Issue 4, Nov 2014 RSS-210 Issue 8, Dec 2010	26 dB Emission Bandwidth measurement	NA	Antenna port
	99 Percent Occupied Bandwidth	NA	Antenna port
	Maximum Conducted Output Power	Refer Section 5.3.3.2	Antenna port
	Peak Power Spectral Density	Refer Section 5.3.4.2	Antenna port
	Peak Excursion ratio	Refer Section 5.3.5.2	Antenna port
	Unwanted Emissions levels-Conducted Band edge	EIRP of < -27dBm/MHz	Antenna port

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3 TEST RESULT

5.3.1 26 dB EMISSION BANDWIDTH MEASUREMENT

5.3.1.1 TEST SPECIFICATION

Test Standard	47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C RSS-Gen, Issue 4, Nov 2014	
Test Procedure	ANSI C63.10-2013	
Modulation Bandwidth	**40MHz**	**10MHz**
Resolution Bandwidth	300 kHz	100 kHz
Video Bandwidth	1MHz	300 kHz
Sweep Time	100ms	
Attenuation	Auto	
Test Mode	Conducted	
Detector	Peak	
Input Voltage	120V AC	
Input Frequency	60 Hz	
Temperature	22.0°C	
Humidity	56.0%	
Tested By	Subhendu	
Test Date	05th May 2015 to12th May 2015	

5.3.1.2 LIMITS

Standard	Reference section	Frequency range	Limit
47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C RSS-Gen, Issue 4, Nov 2014	15.403 (h) (i)	5470MHz to 5725MHz	NA

5.3.1.3 TEST SETUP

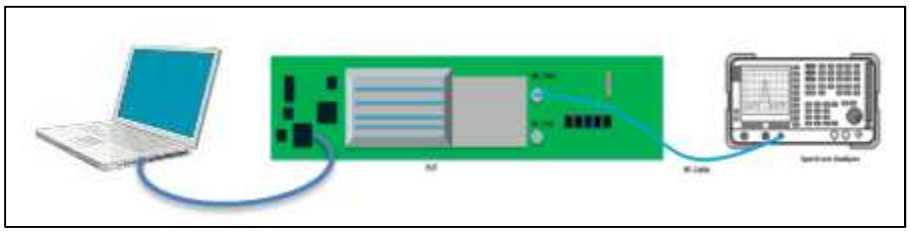

Figure 2: Typical test setup for Conducted RF Test setup

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.1.4 TEST PROCEDURE

The Conducted test was performed using the Spectrum analyzer. Measurements were done as per Section C of **"789033 D01 General UNII Test Procedures Old Rules v01r04".** The RF output of the EUT was connected to the input port of Spectrum analyzer using an attenuator. Captured the data from spectrum analyzer and compared with the limits specified in the standard.

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.1.5 RESULT (SUPPORTING GRAPHS / DATA) FOR BASIC CONDITION

5.3.1.5.1 40MHZ MODULATION BW-LOW CHANNEL_5280MHZ

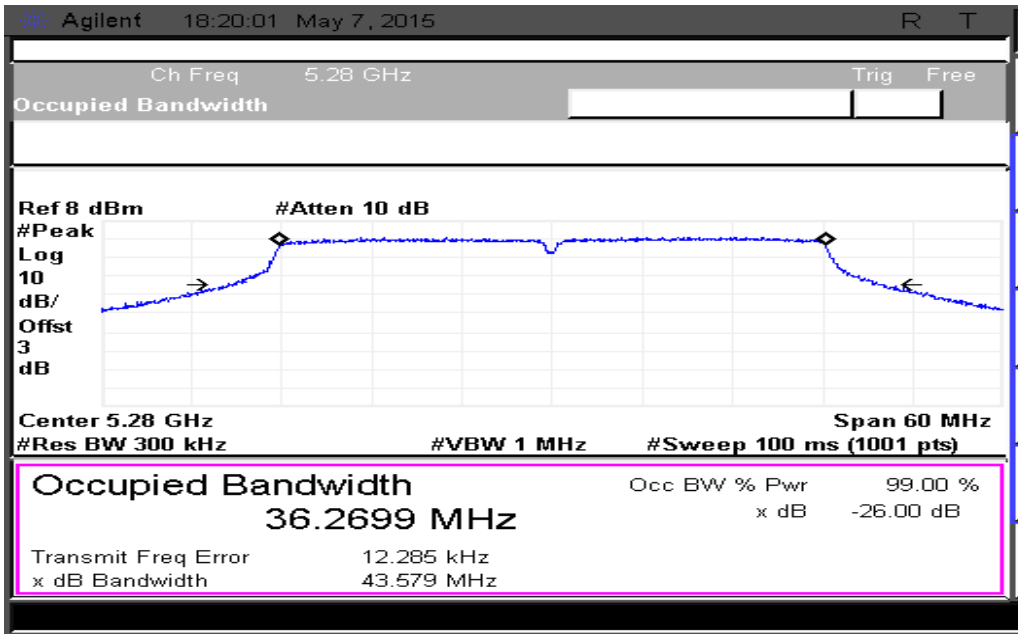

Figure 3: 26dB Bandwidth measured at ch0

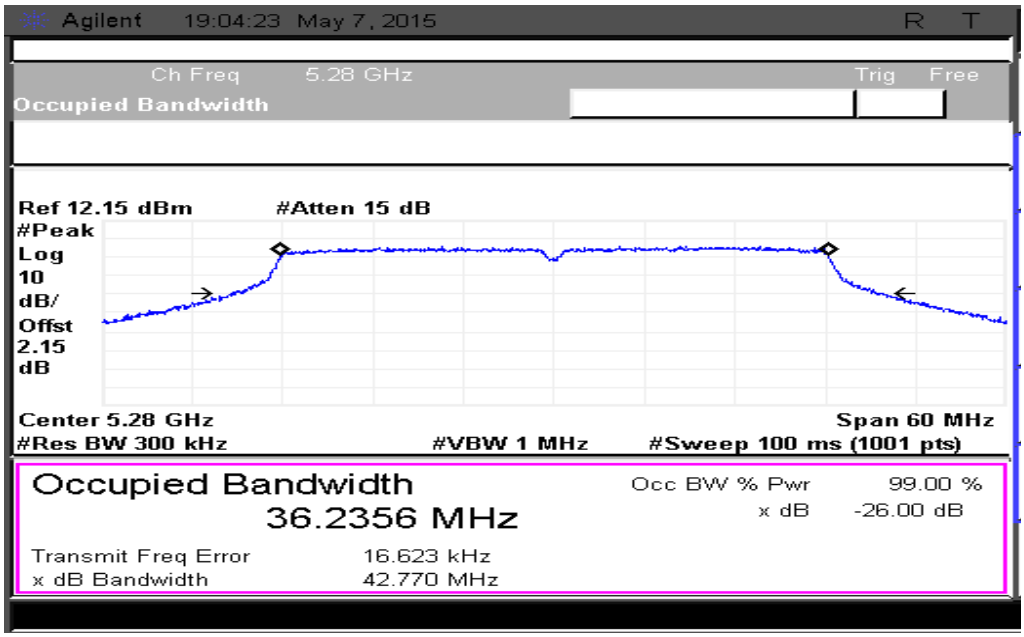

Figure 4: 26dB Bandwidth measured at ch1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.1.5.2 40MHz Modulation BW -Mid channel_5300MHz

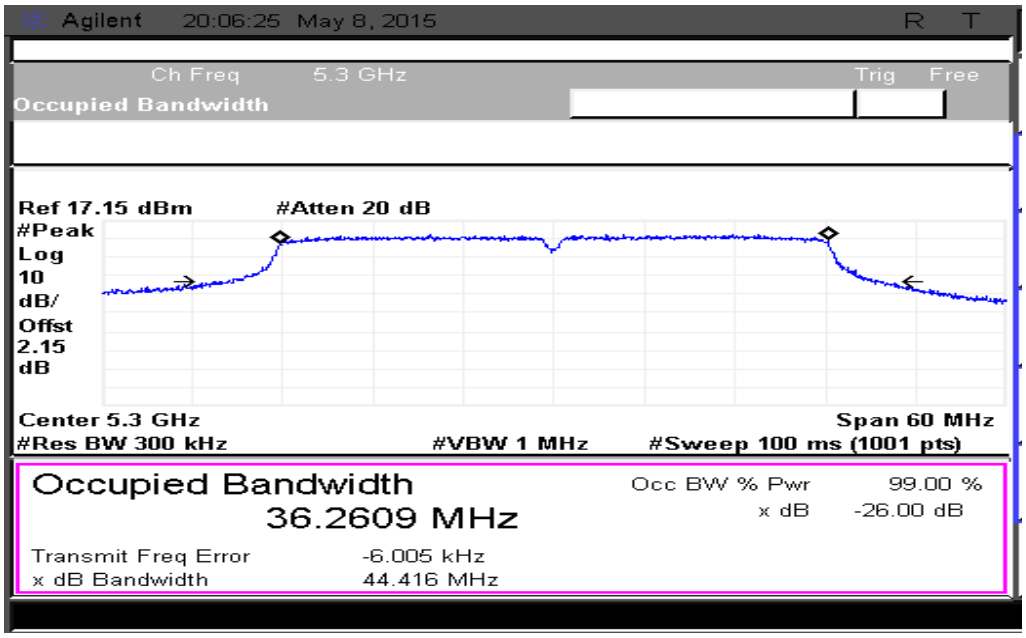

Figure 5: 26dB Bandwidth measured at ch0

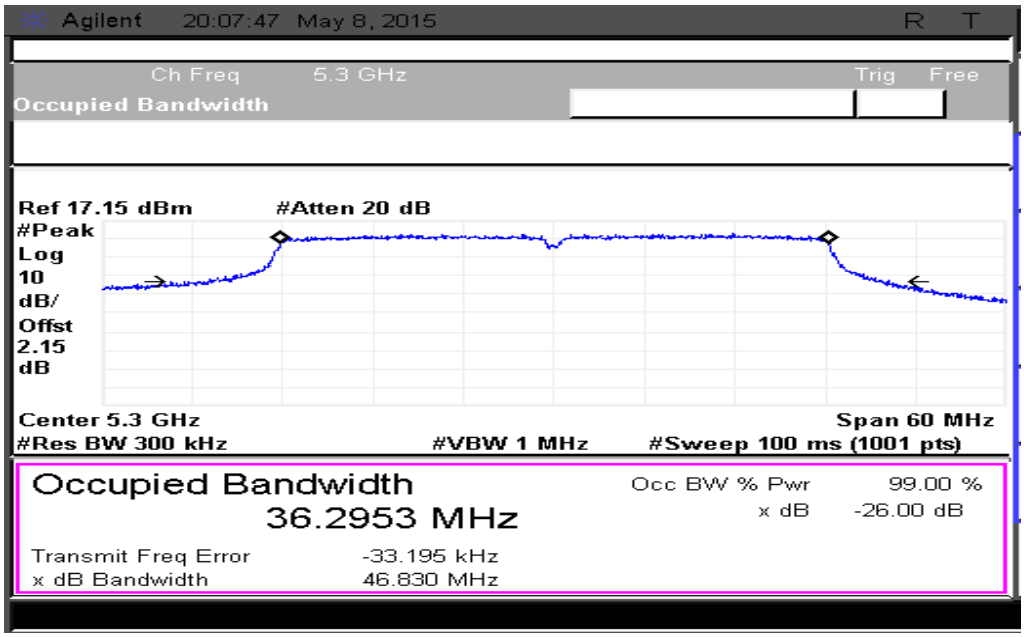

Figure 6: 26dB Bandwidth measured at ch1

5.3.1.5.3 40MHz Modulation BW -High channel_5320MHz

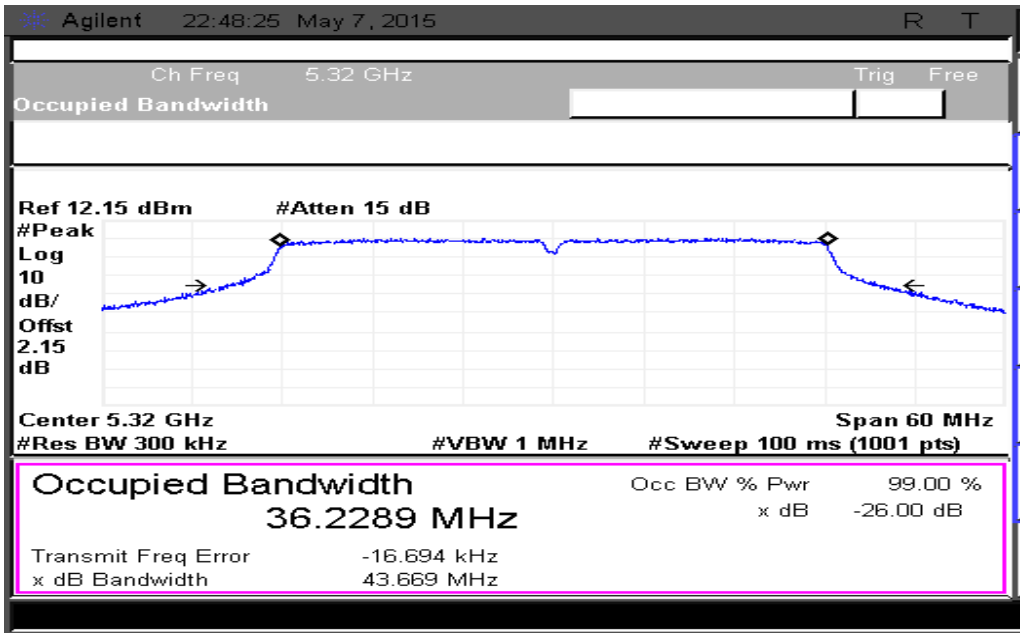

Figure 7: 26dB Bandwidth measured at ch0

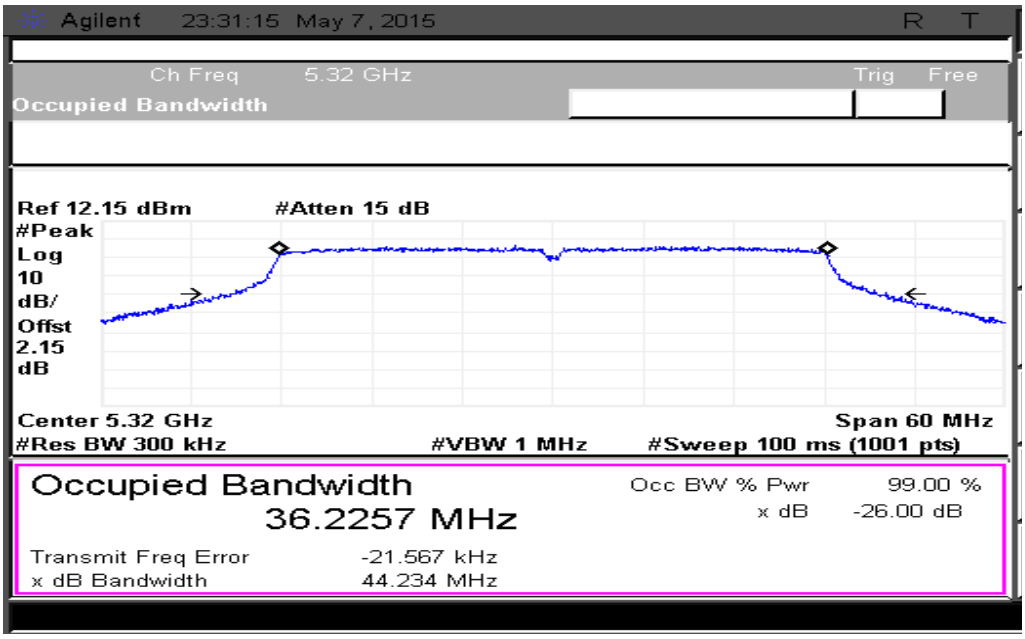

Figure 8: 26dB Bandwidth measured at ch1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.1.5.4 10MHz Modulation BW-Low channel_5265MHz

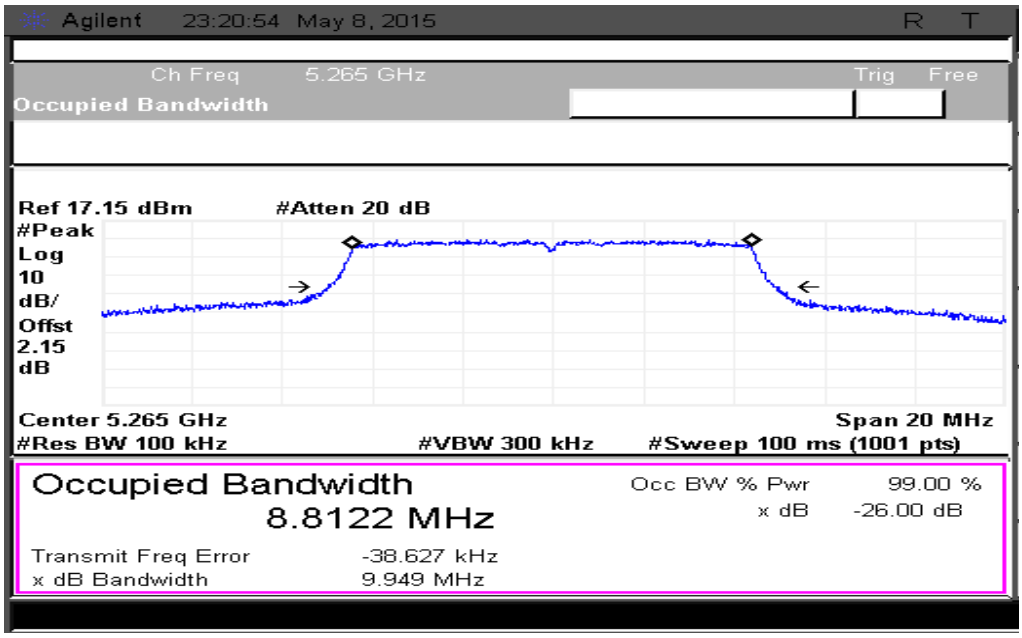

Figure 9: 26dB Bandwidth measured at ch0

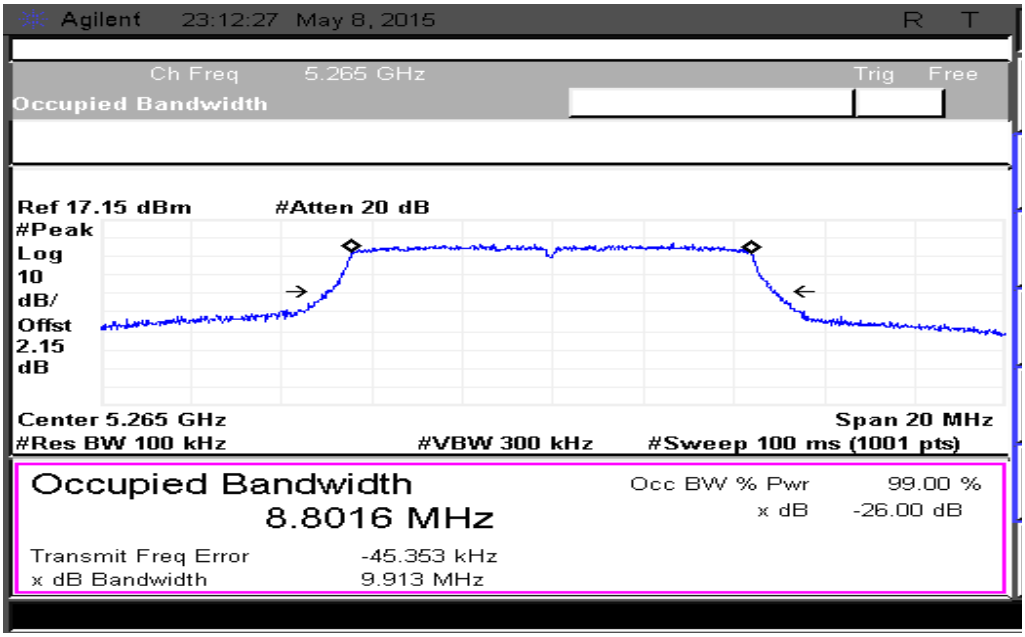

Figure 10: 26dB Bandwidth measured at ch1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.1.5.5 10MHz Modulation BW-Mid channel_5300MHz

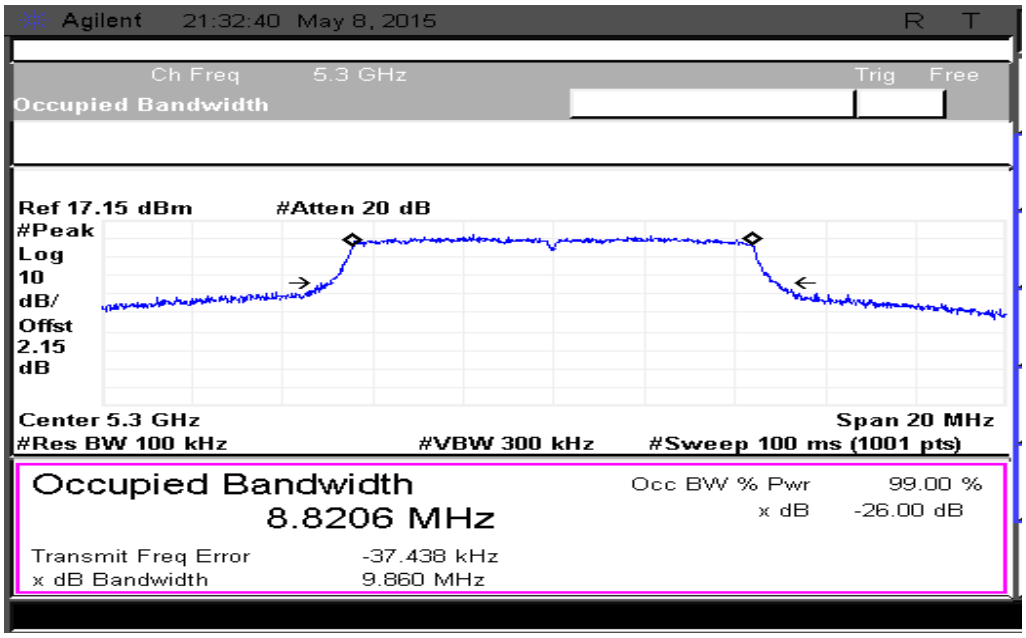

Figure 11: 26dB Bandwidth measured at ch0

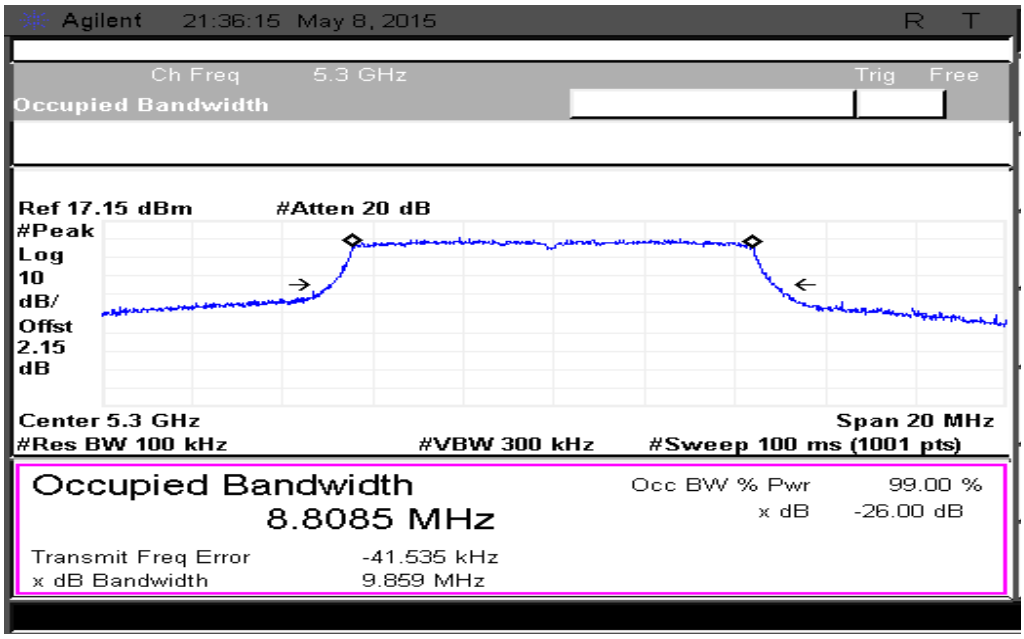

Figure 12: 26dB Bandwidth measured at ch1

5.3.1.5.6 10MHz Modulation BW-High channel_5335MHz

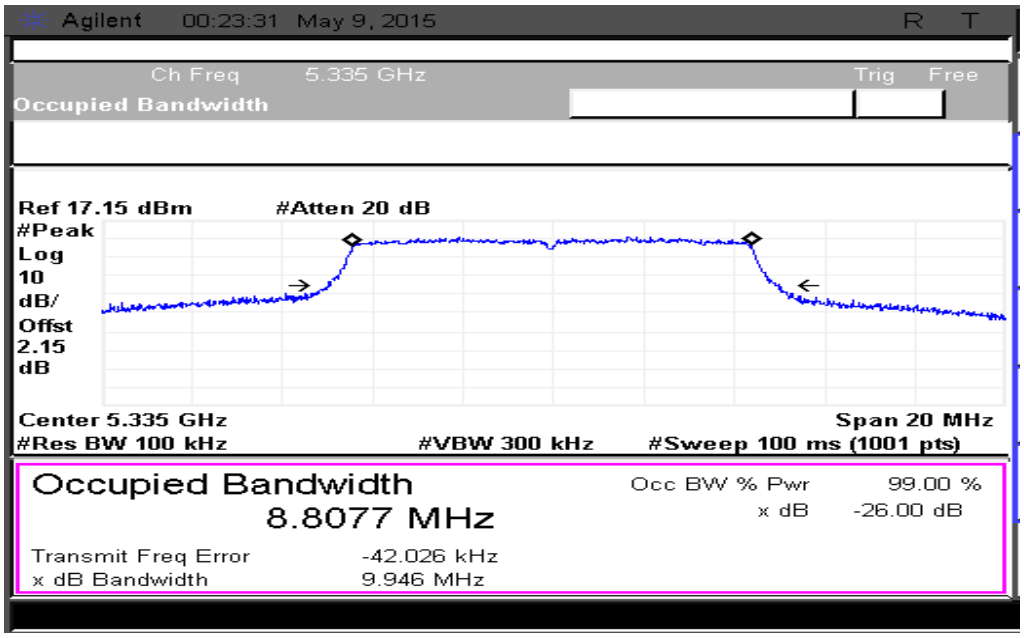

Figure 13: 26dB Bandwidth measured at ch0

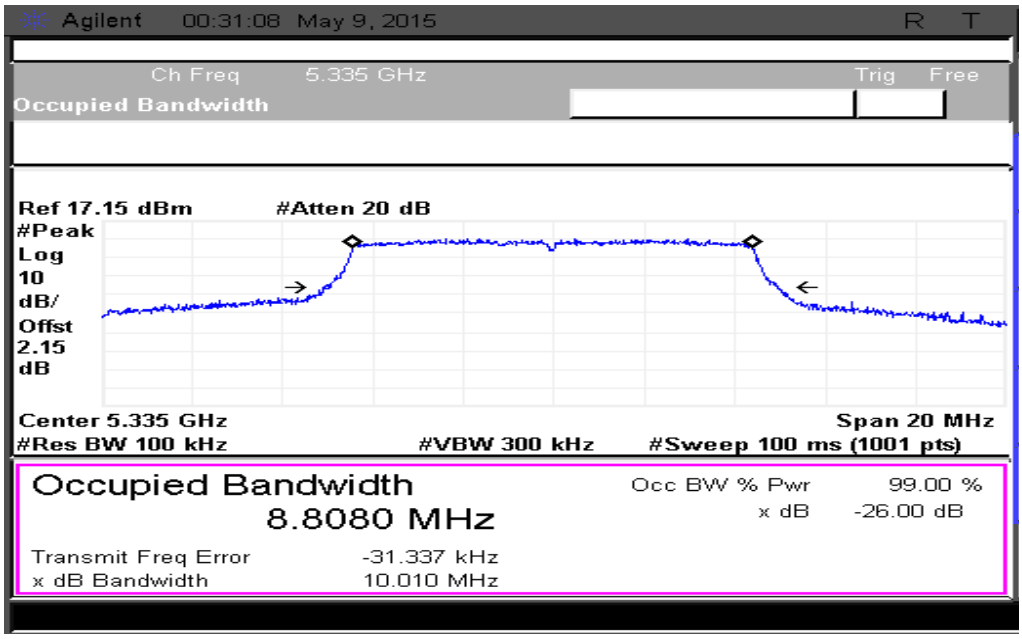

Figure 14: 26dB Bandwidth measured at ch1

5.3.1.6 RESULT (SUPPORTING GRAPHS / DATA) FOR 17DBI ANTENNA CONDITION

5.3.1.6.1 40MHZ MODULATION BW-LOW CHANNEL_5280 MHZ

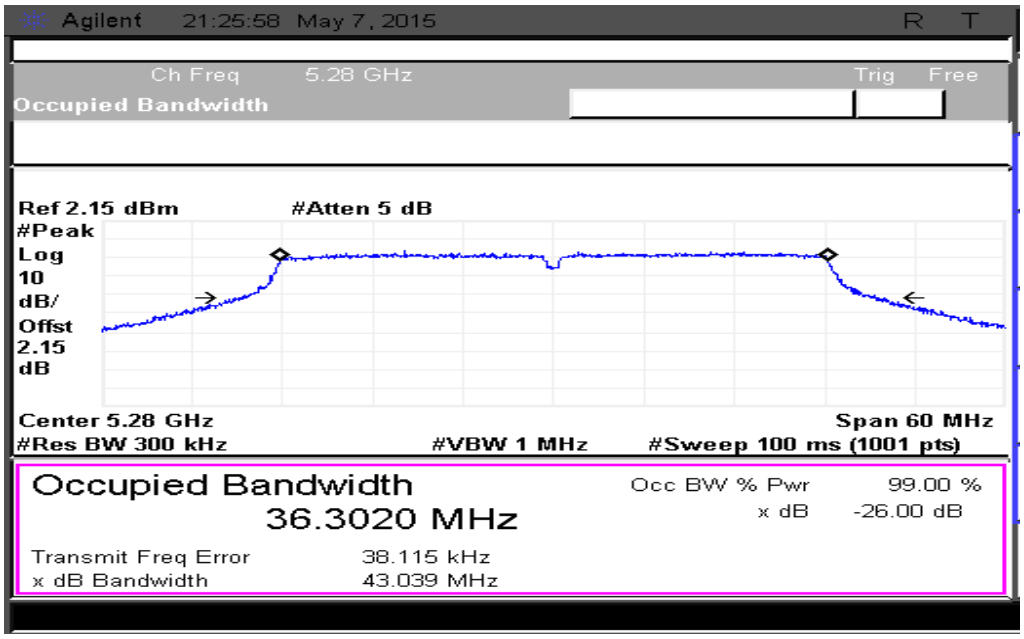

Figure 15: 26dB Bandwidth measured at ch0

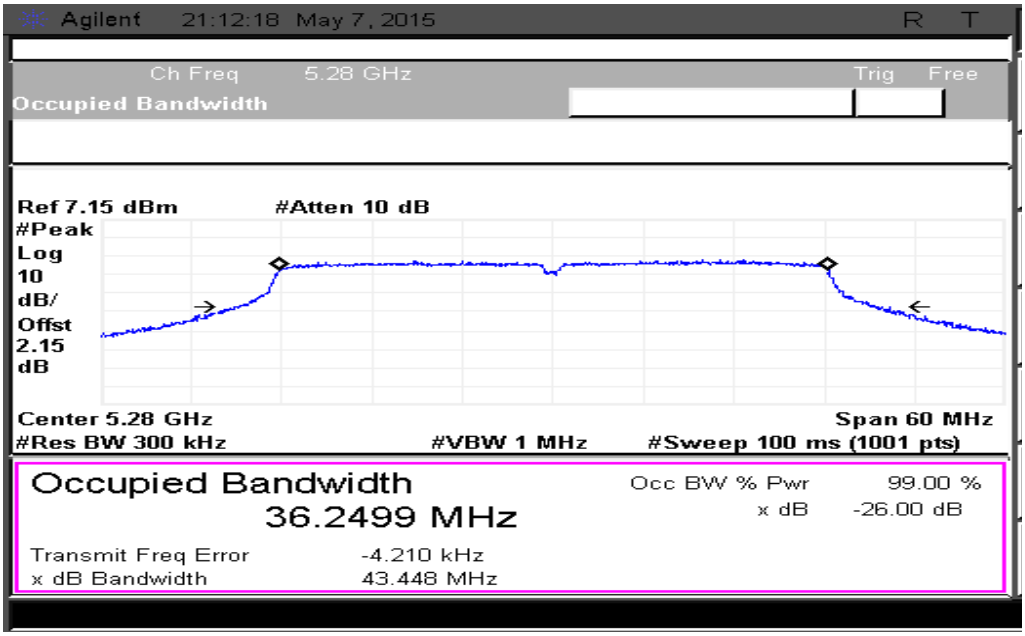

Figure 16: 26dB Bandwidth measured at ch1

5.3.1.6.2 40MHz Modulation BW -Mid channel_5300 MHz

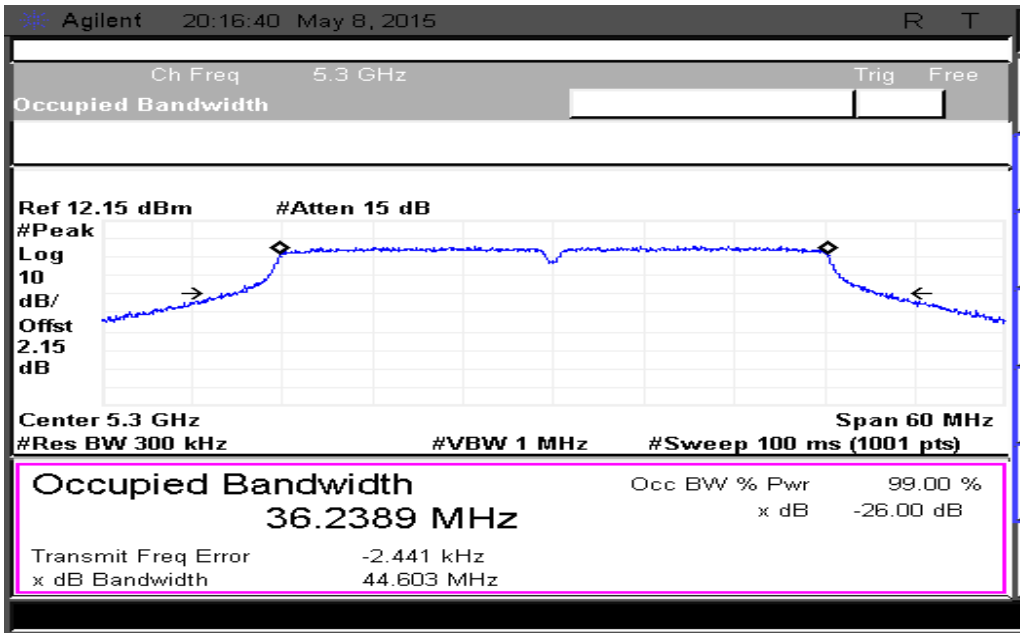

Figure 17: 26dB Bandwidth measured at ch0

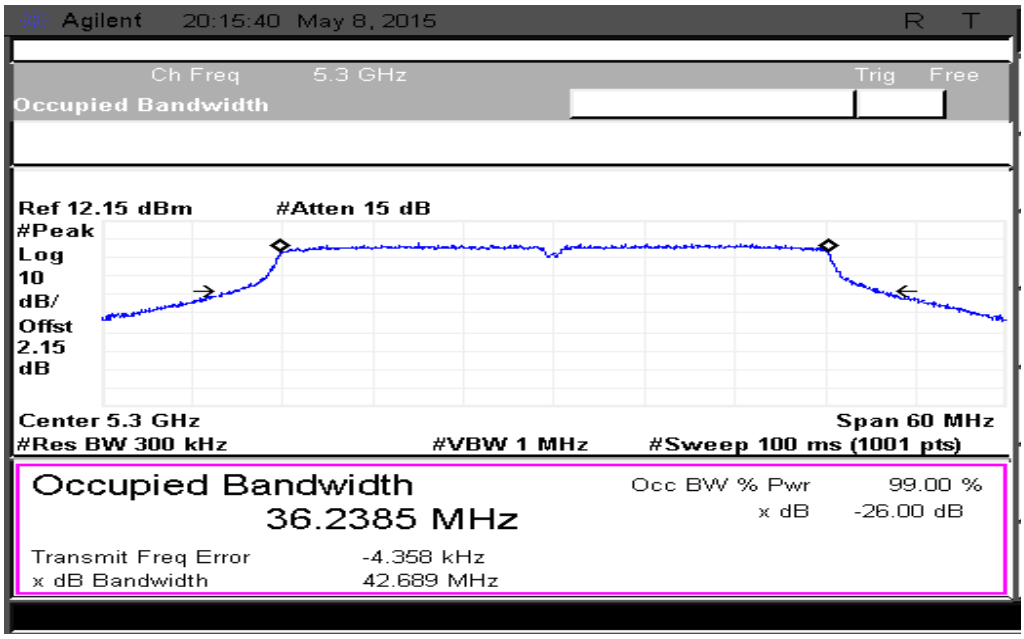

Figure 18: 26dB Bandwidth measured at ch1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.1.6.3 40MHz Modulation BW -High channel_5320MHz

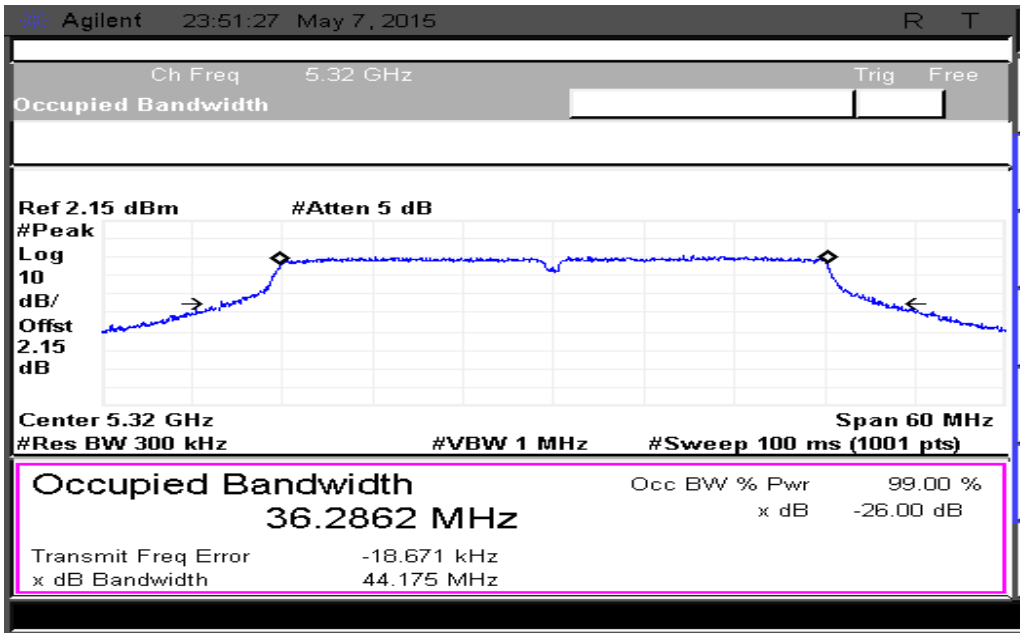

Figure 19: 26dB Bandwidth measured at ch0

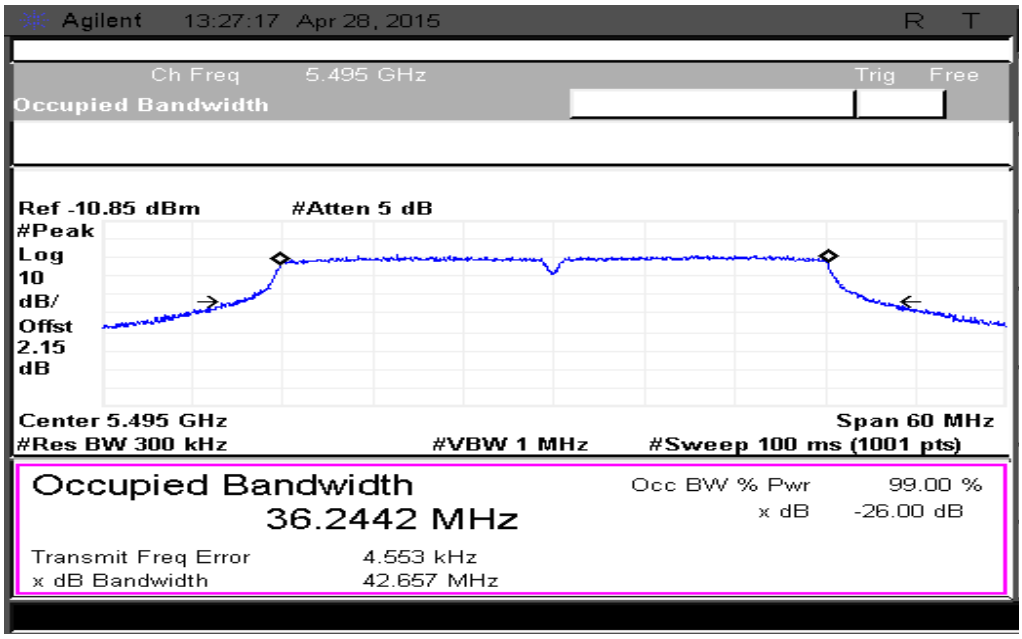

Figure 20: 26dB Bandwidth measured at ch1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.1.6.4 10MHz Modulation BW-Low channel_5265 MHz

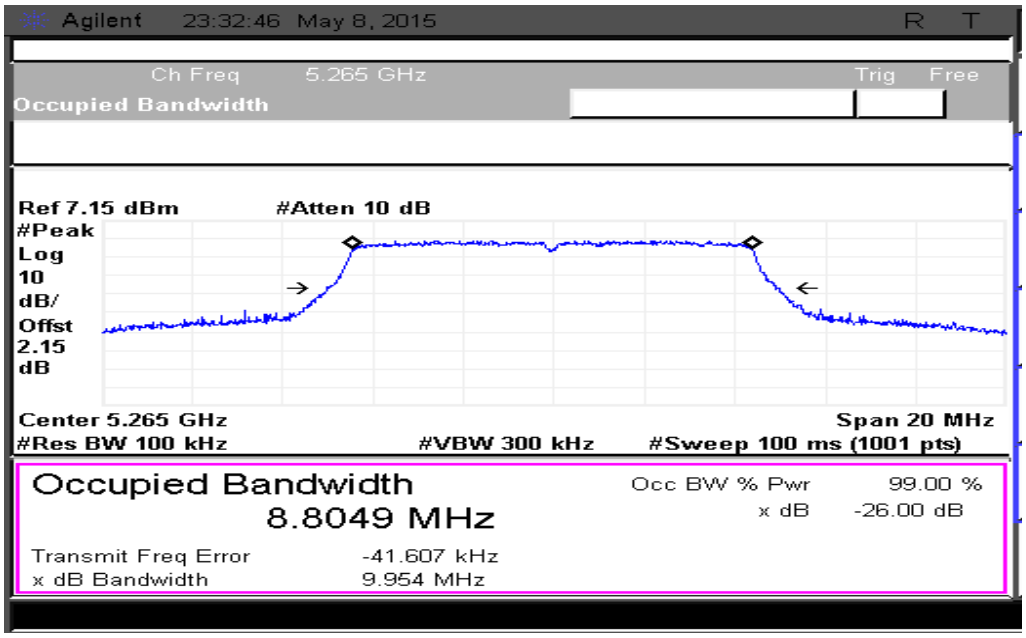

Figure 21: 26dB Bandwidth measured at ch0

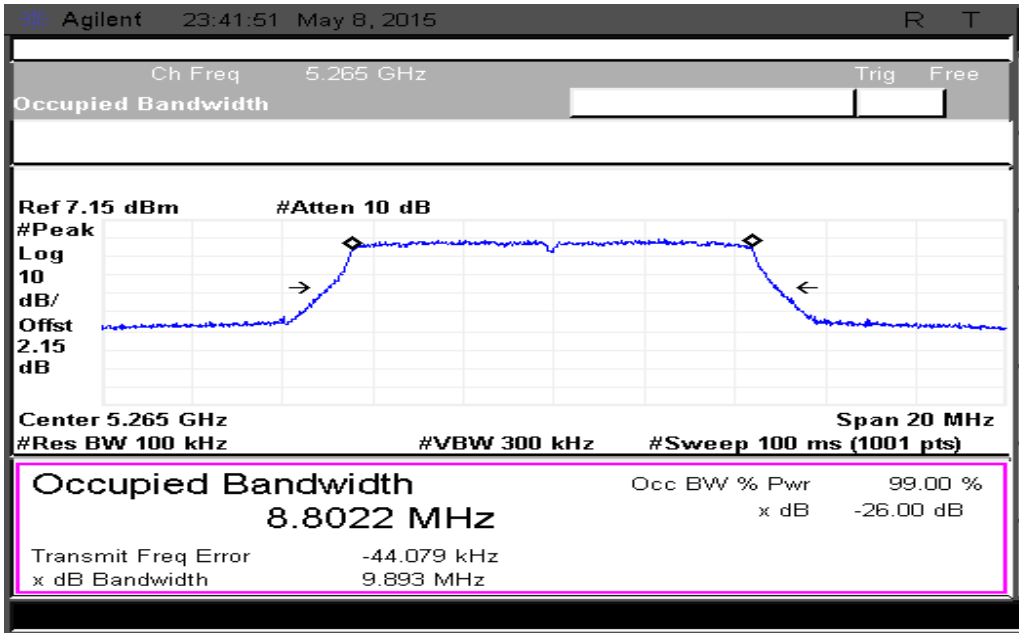

Figure 22: 26dB Bandwidth measured at ch1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.1.6.5 10MHz Modulation BW-Mid channel_5300 MHz

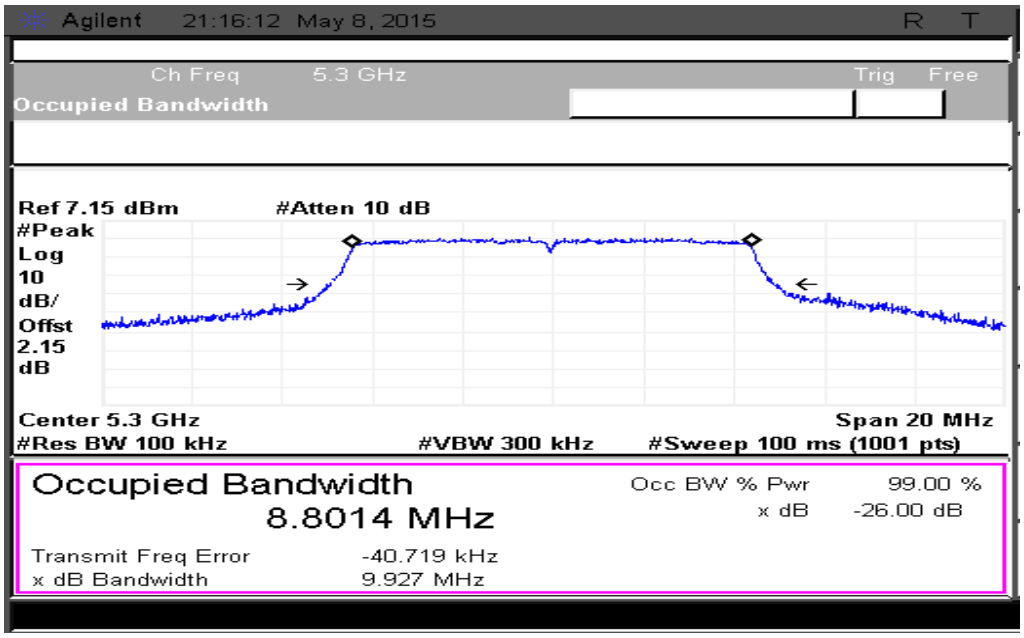

Figure 23: 26dB Bandwidth measured at ch0

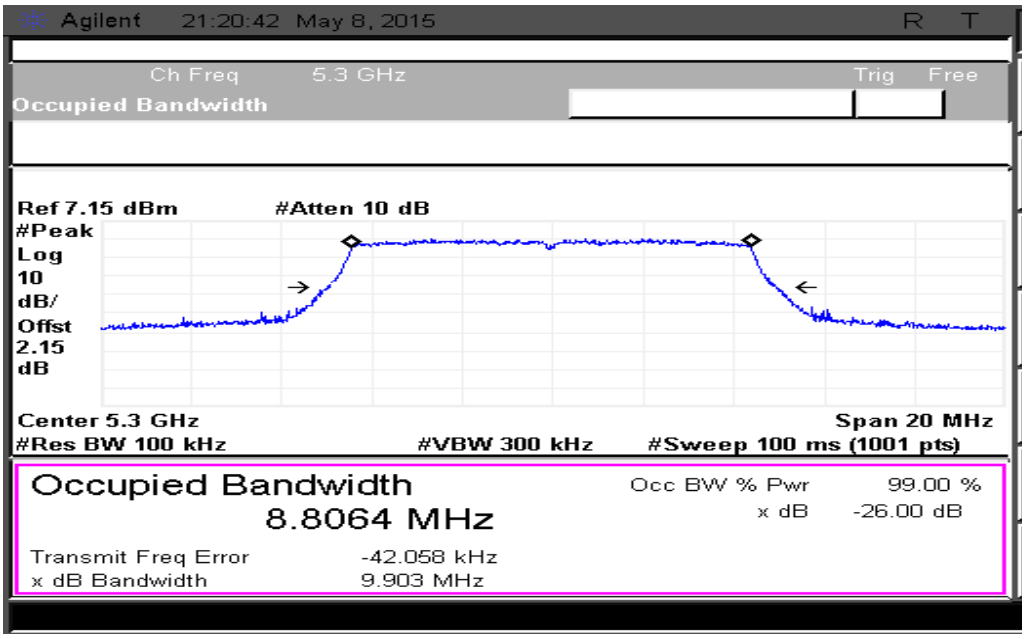

Figure 24: 26dB Bandwidth measured at ch1

5.3.1.6.6 10MHz Modulation BW-High channel_5335 MHz

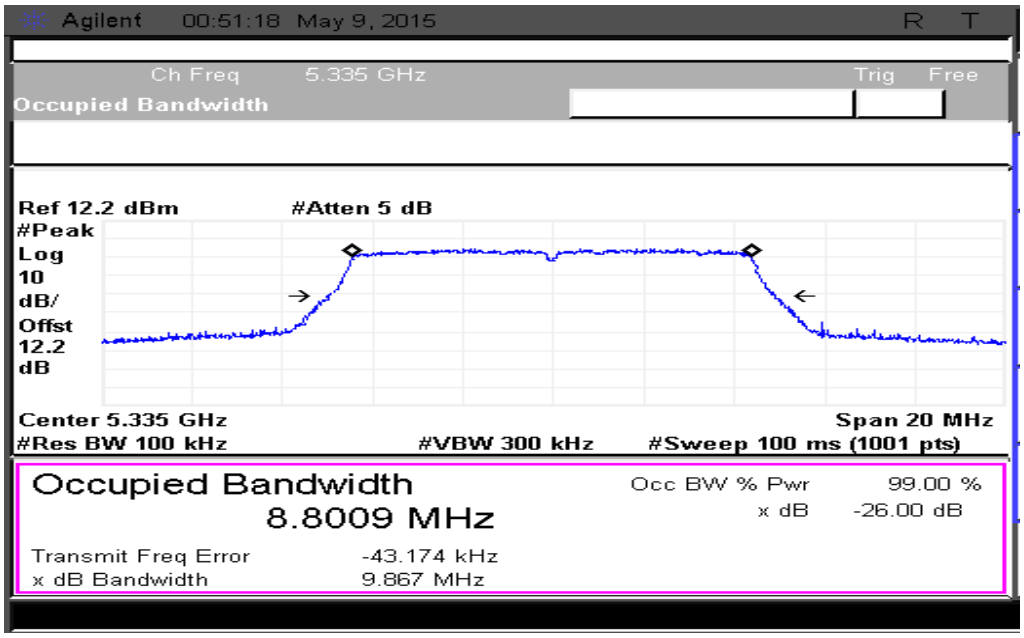

Figure 25: 26dB Bandwidth measured at ch0

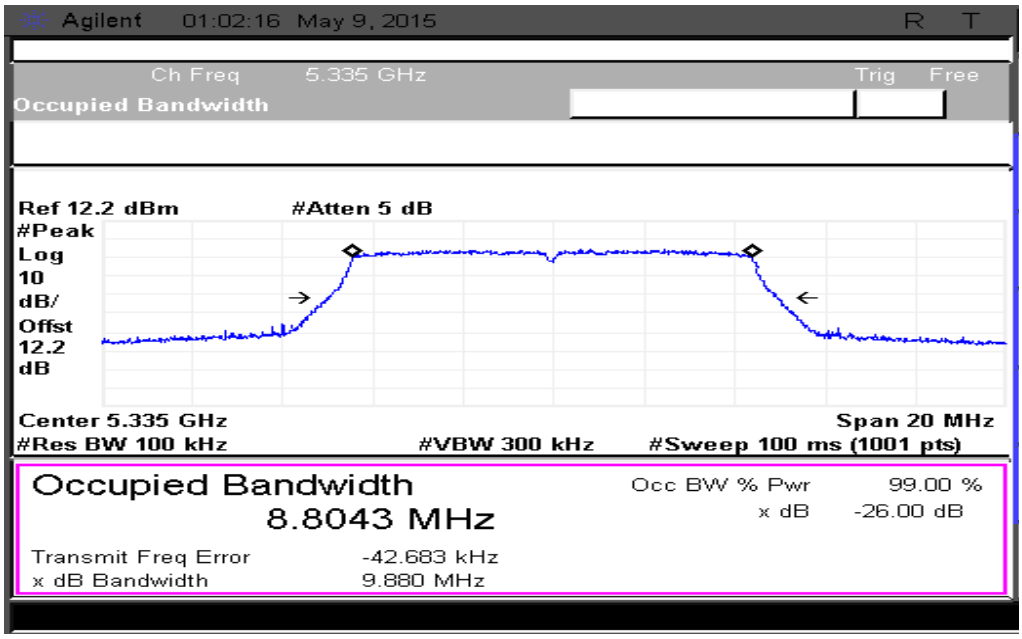

Figure 26: 26dB Bandwidth measured at ch1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.1.7 RESULT (SUPPORTING GRAPHS / DATA) FOR 24DBI DISH CONDITION

5.3.1.7.1 40MHZ MODULATION BW-LOW CHANNEL_5280 MHZ

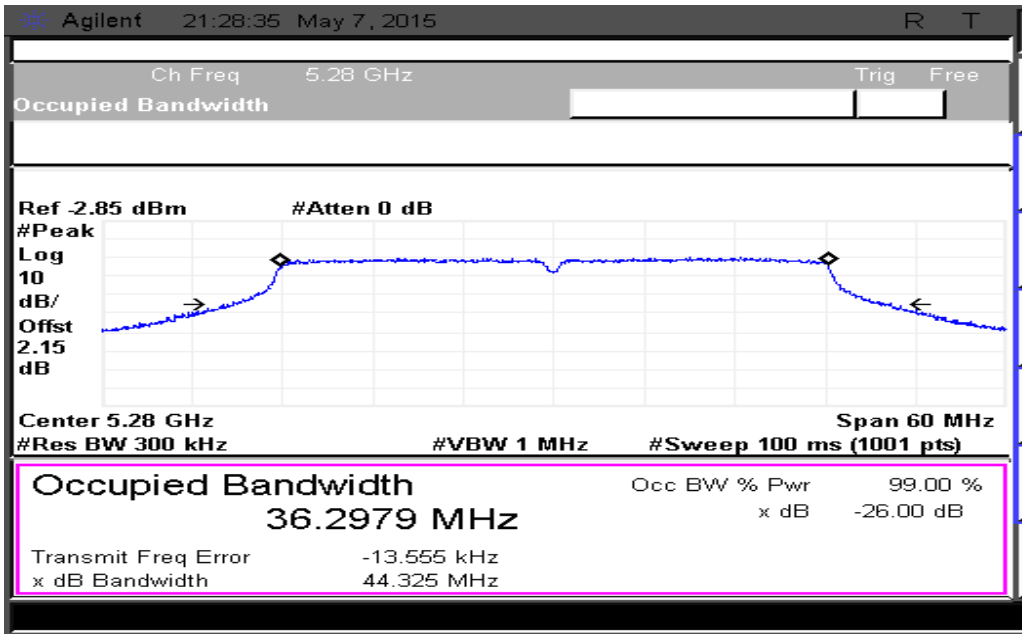

Figure 27: 26dB Bandwidth measured at ch0

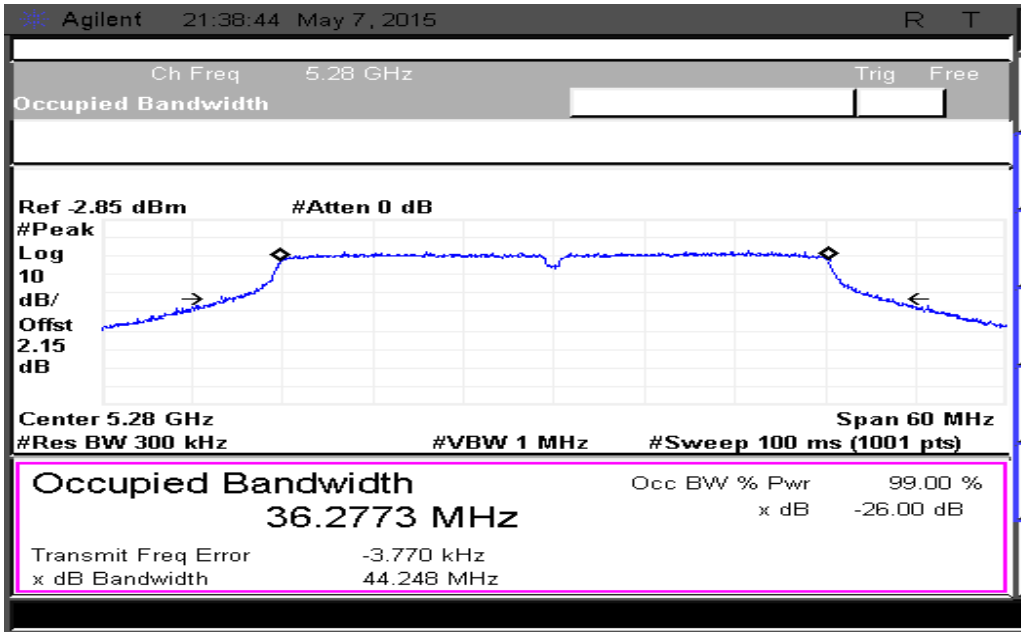

Figure 28: 26dB Bandwidth measured at ch1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.1.7.2 40MHz Modulation BW -Mid channel_5300 MHz

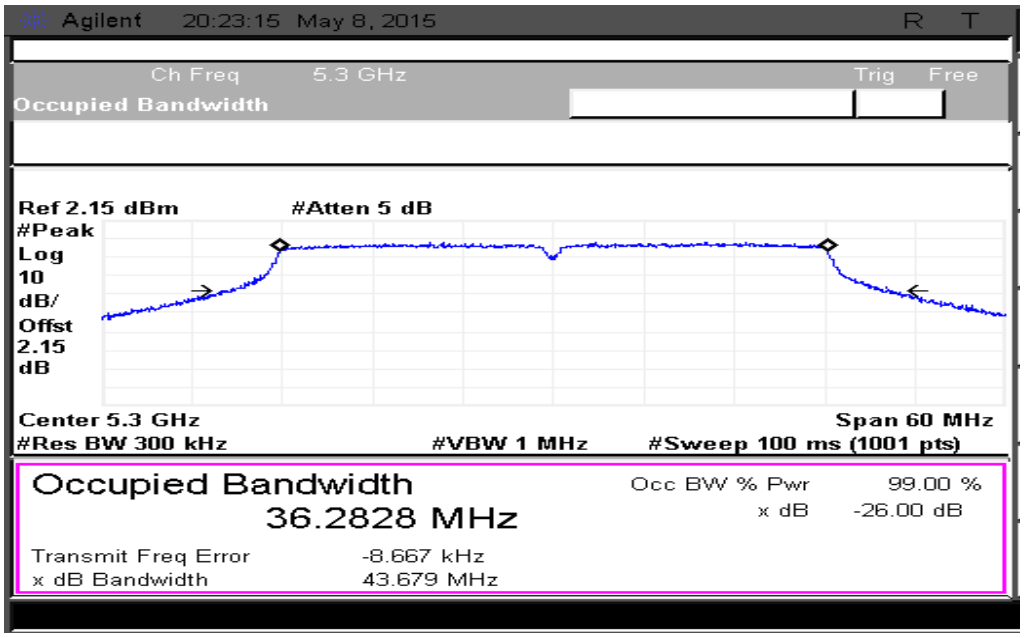

Figure 29: 26dB Bandwidth measured at ch0

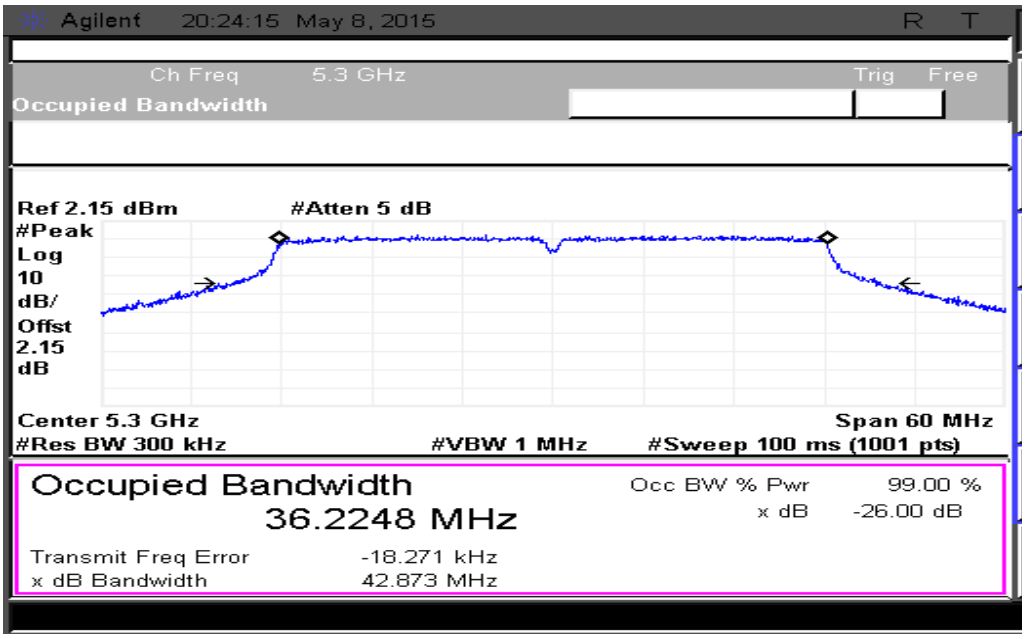

Figure 30: 26dB Bandwidth measured at ch1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.1.7.3 40MHz Modulation BW -High channel_5320MHz

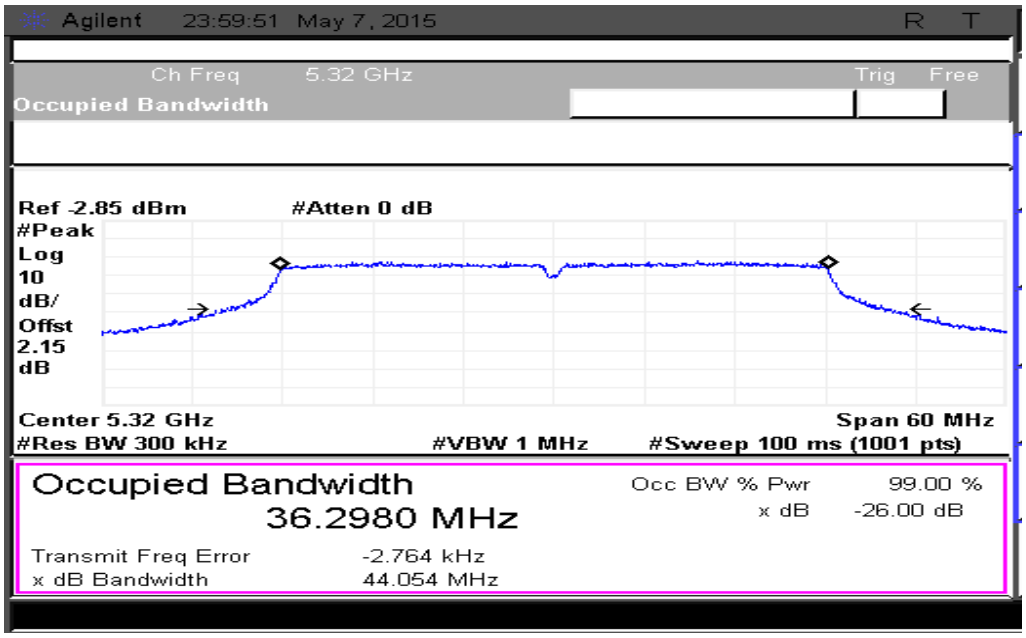

Figure 31: 26dB Bandwidth measured at ch0

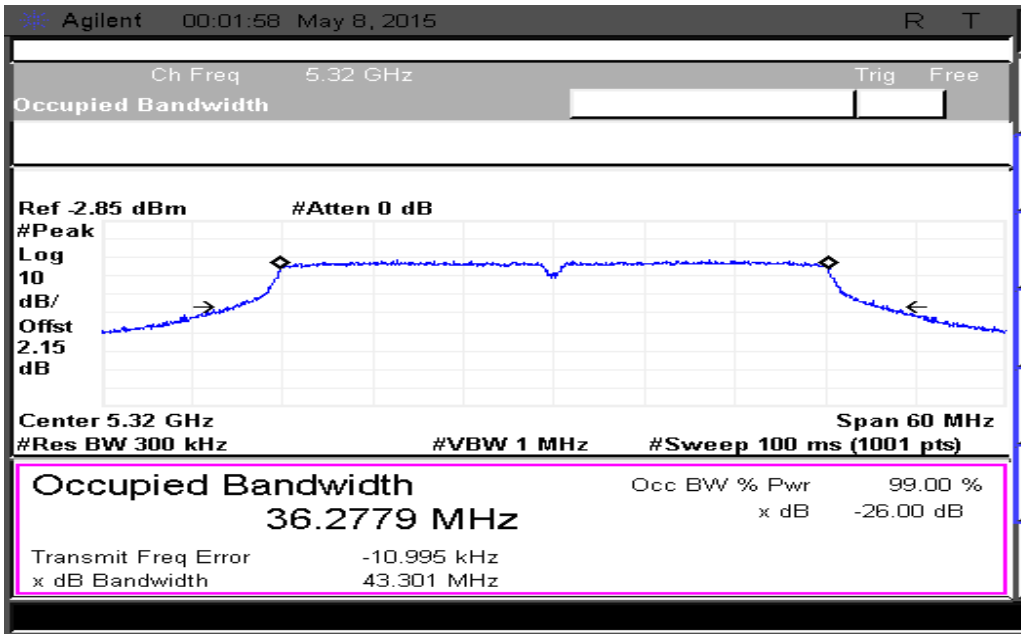

Figure 32: 26dB Bandwidth measured at ch1

5.3.1.7.4 10MHz Modulation BW-Low channel_5265 MHz

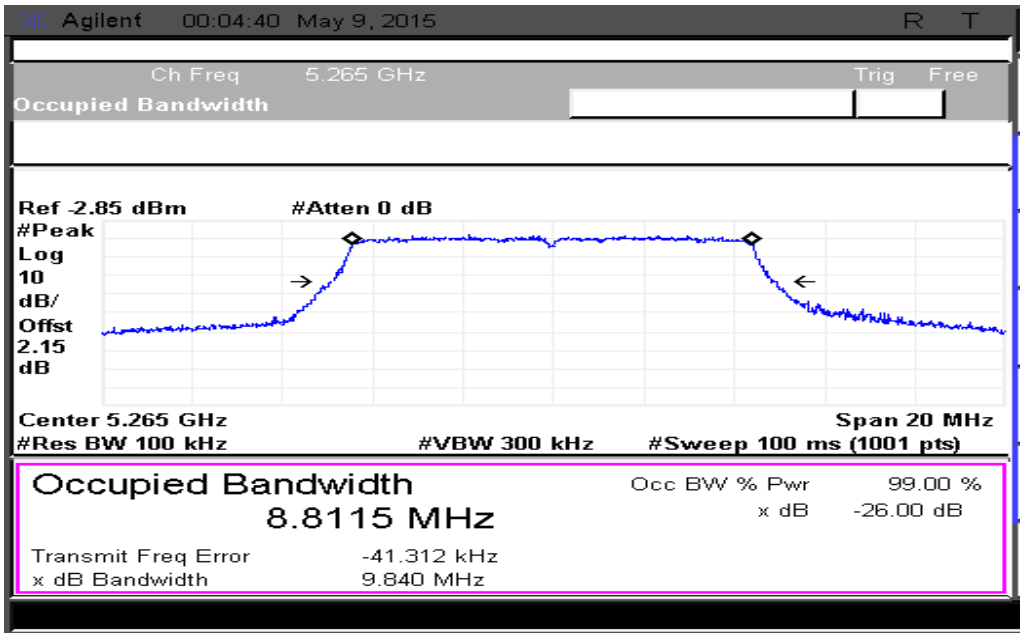

Figure 33: 26dB Bandwidth measured at ch0

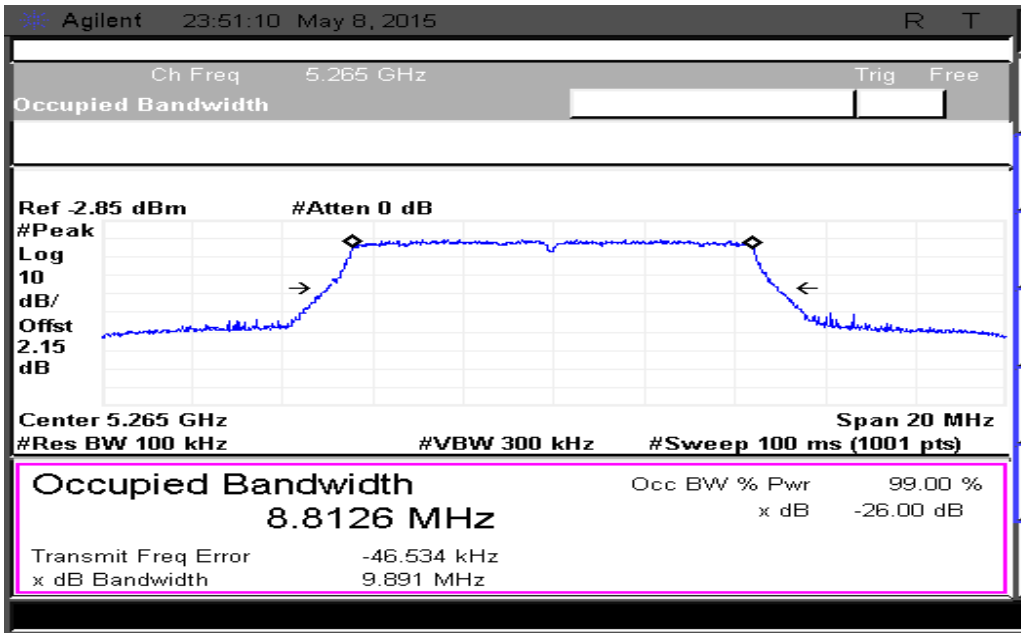

Figure 34: 26dB Bandwidth measured at ch1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.1.7.5 10MHz Modulation BW-Mid channel_5300 MHz

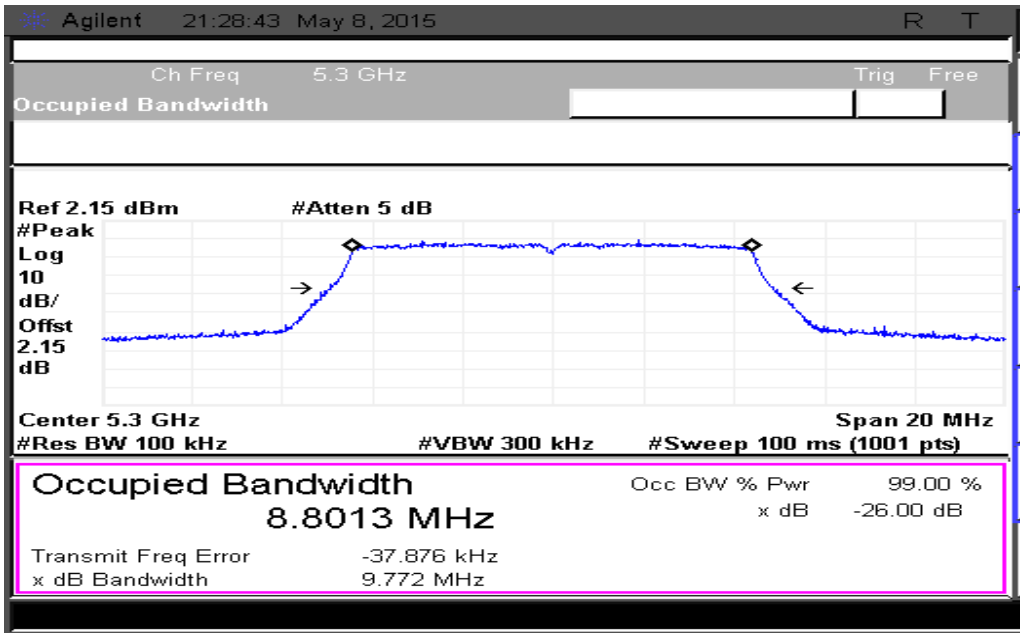

Figure 35: 26dB Bandwidth measured at ch0

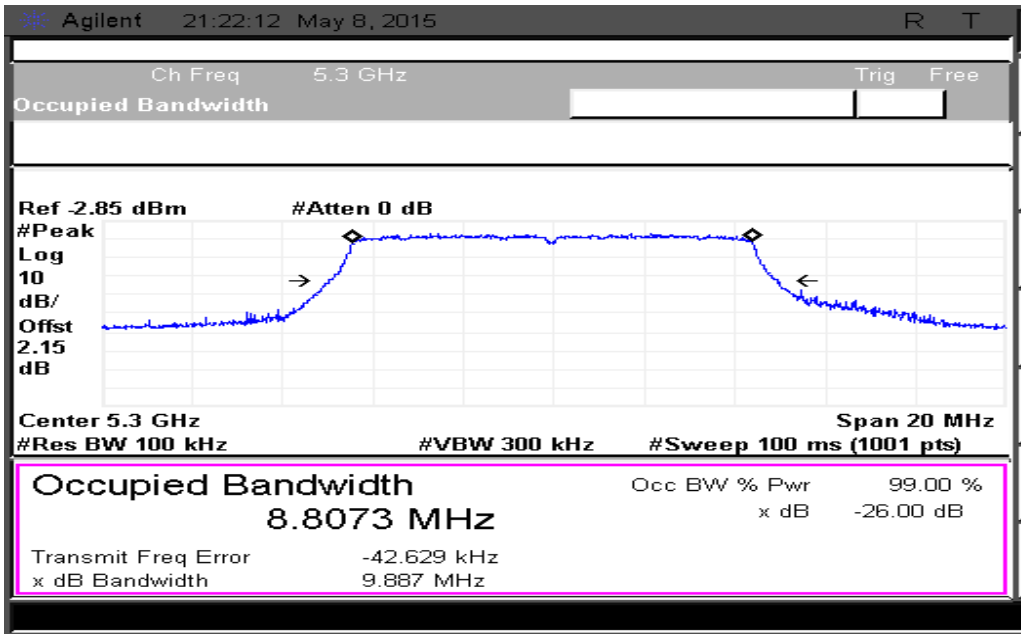

Figure 36: 26dB Bandwidth measured at ch1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.1.7.6 10MHz Modulation BW-High channel_5335MHz

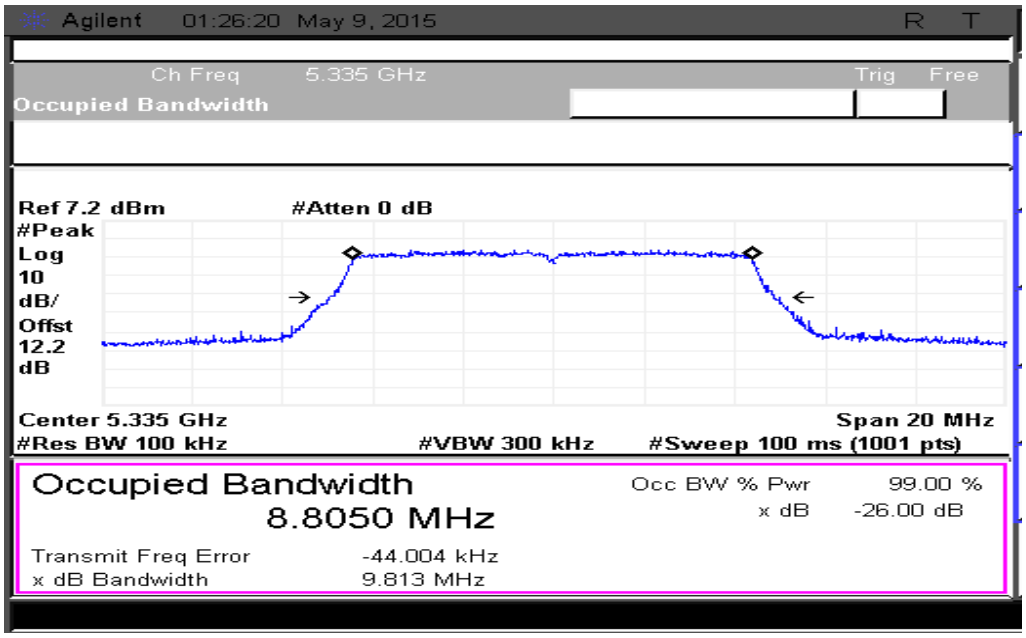

Figure 37: 26dB Bandwidth measured at ch0

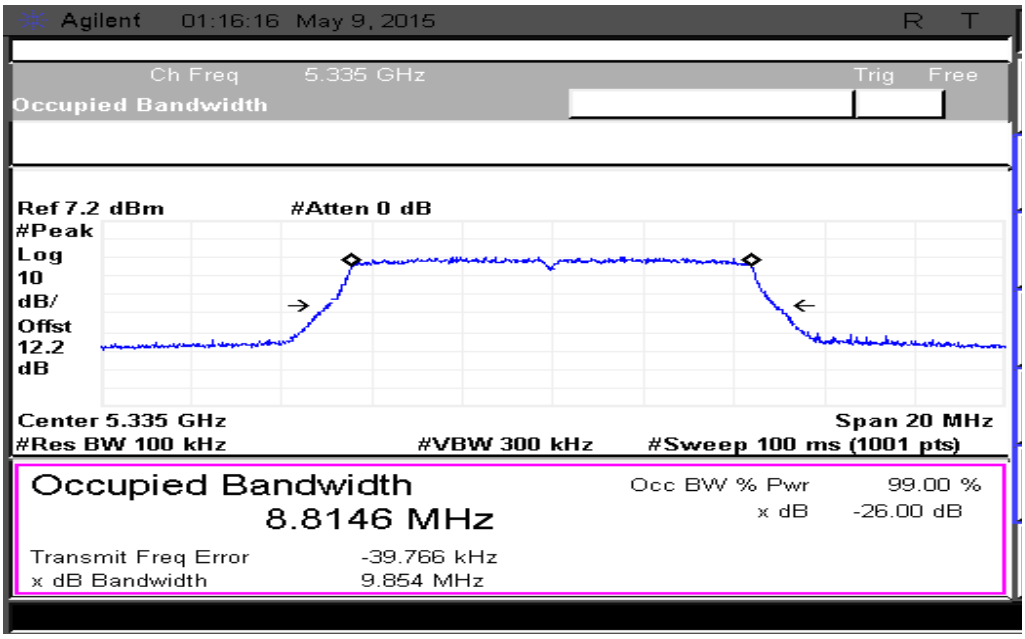

Figure 38: 26dB Bandwidth measured at ch1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.1.8 RESULT

26dB Bandwidth for all channels in both 40MHz & 10MHz Modulation Bandwidths has been measured and tabulated in below table.

Test Condition	Modulation Bandwidth (MHz)	Antenna path	Channel Frequency (MHz)	Recorded value (MHz)
Basic	40	Ch. 0	5280	43.579
Basic	40	Ch. 0	5300	44.416
Basic	40	Ch. 0	5320	43.669
Basic	40	Ch. 1	5280	42.770
Basic	40	Ch. 1	5300	46.830
Basic	40	Ch. 1	5320	44.234
Basic	10	Ch. 0	5265	9.949
Basic	10	Ch. 0	5300	9.860
Basic	10	Ch. 0	5335	9.946
Basic	10	Ch. 1	5265	9.913
Basic	10	Ch. 1	5300	9.859
Basic	10	Ch. 1	5335	10.010
17dBi Antenna	40	Ch. 0	5280	43.039
17dBi Antenna	40	Ch. 0	5300	44.603
17dBi Antenna	40	Ch. 0	5320	44.175
17dBi Antenna	40	Ch. 1	5280	43.448
17dBi Antenna	40	Ch. 1	5300	42.689
17dBi Antenna	40	Ch. 1	5320	42.657
17dBi Antenna	10	Ch. 0	5265	9.954
17dBi Antenna	10	Ch. 0	5300	9.927
17dBi Antenna	10	Ch. 0	5335	9.867
17dBi Antenna	10	Ch. 1	5265	9.893
17dBi Antenna	10	Ch. 1	5300	9.903
17dBi Antenna	10	Ch. 1	5335	9.880
24dBi Dish	40	Ch. 0	5280	44.325
24dBi Dish	40	Ch. 0	5300	43.679
24dBi Dish	40	Ch. 0	5320	44.054
24dBi Dish	40	Ch. 1	5280	44.248
24dBi Dish	40	Ch. 1	5300	42.873
24dBi Dish	40	Ch. 1	5320	43.301
24dBi Dish	10	Ch. 0	5265	9.840
24dBi Dish	10	Ch. 0	5300	9.772
24dBi Dish	10	Ch. 0	5335	9.813
24dBi Dish	10	Ch. 1	5265	9.891
24dBi Dish	10	Ch. 1	5300	9.887
24dBi Dish	10	Ch. 1	5335	9.854

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.2 99 PERCENT OCCUPIED BANDWIDTH MEASUREMENT

5.3.2.1 TEST SPECIFICATION

Test Standard	47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C RSS-Gen, Issue 4, Nov 2014	
Test Procedure	ANSI C63.10-2013	
Modulation Bandwidth	**40MHz**	**10MHz**
Resolution Bandwidth	1MHz	300 kHz
Video Bandwidth	3MHz	1MHz
Sweep Time	100ms	
Attenuation	Auto	
Test Mode	Conducted	
Detector	Peak	
Input Voltage	120V AC	
Input Frequency	60 Hz	
Temperature	22.0°C	
Humidity	56.0%	
Tested By	Subhendu	
Test Date	05th May to 12th May	

5.3.2.2 LIMITS

Standard	Reference section	Frequency range	Limit
47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C RSS-Gen, Issue 4, Nov 2014	NA	5250MHz to 5350MHz	NA

5.3.2.3 TEST SETUP

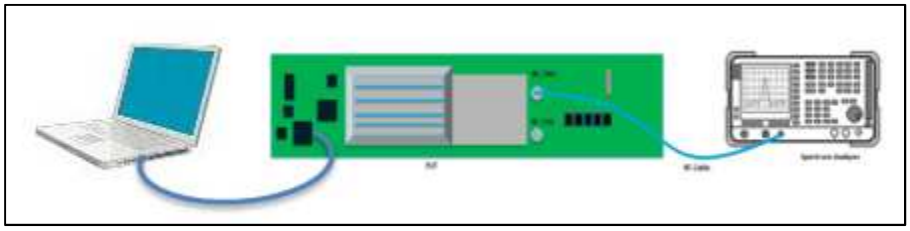

Figure 39: Typical test setup for Conducted RF Test setup

5.3.2.4 TEST PROCEDURE

The Conducted test was performed using the Spectrum analyzer. Measurements were done as per Section D of **"789033 D01 General UNII Test Procedures Old Rules v01r04".** The RF output of the EUT was connected to the input port of Spectrum analyzer using an attenuator. Captured the data from spectrum analyzer and compared with the limits specified in the standard.

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.2.5 RESULT (SUPPORTING GRAPHS / DATA) FOR BASIC CONDITION

5.3.2.5.1 40MHZ MODULATION BW-LOW CHANNEL_5280MHZ

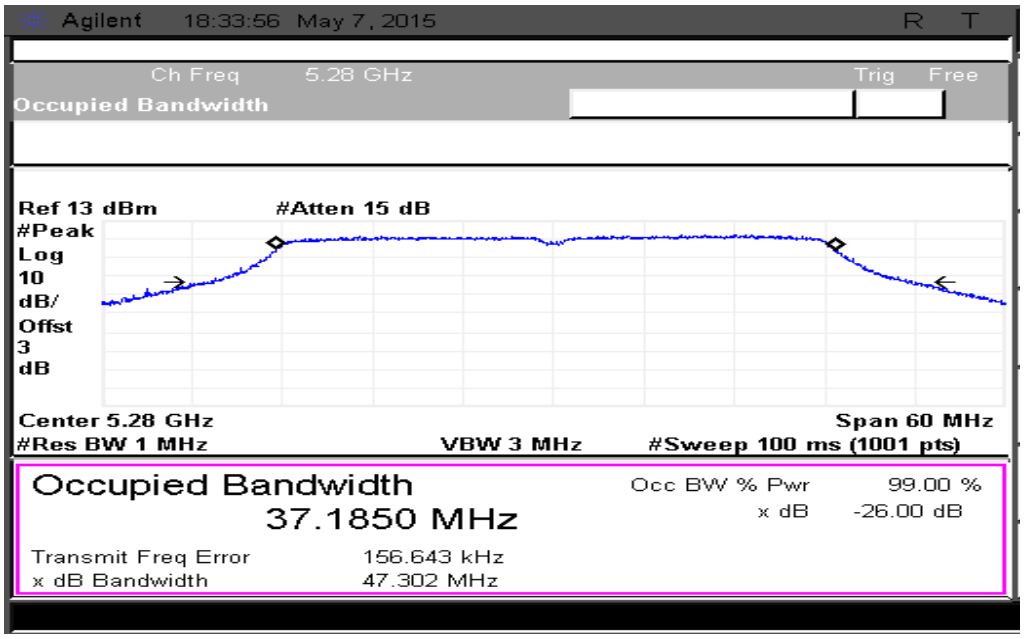

Figure 40: 99 Percent OBW measured at ch.0

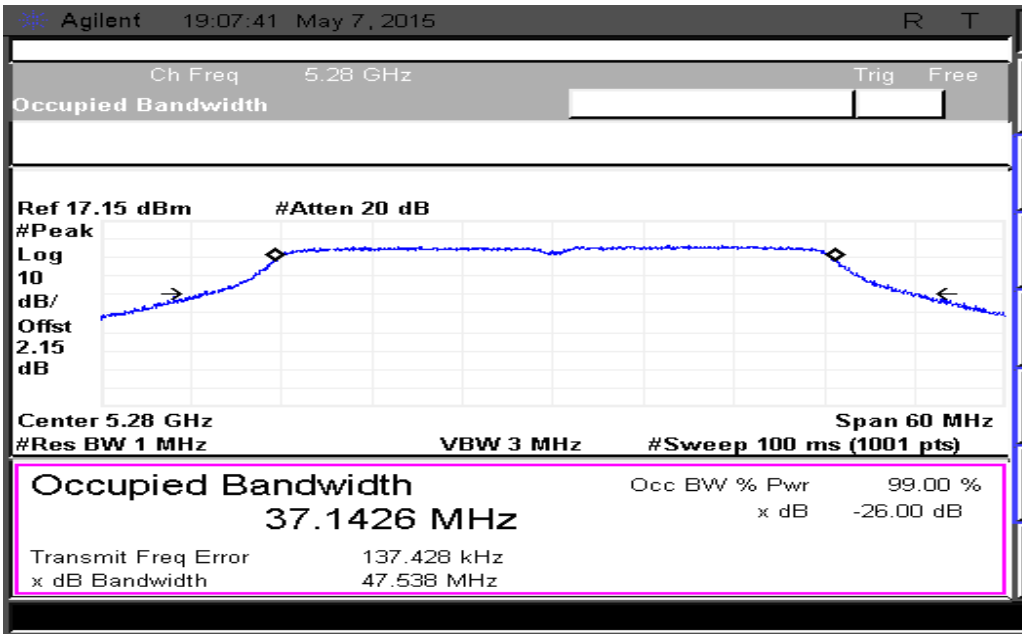

Figure 41: 99 Percent OBW measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.2.5.2 40MHz Modulation BW -Mid channel_5300MHz

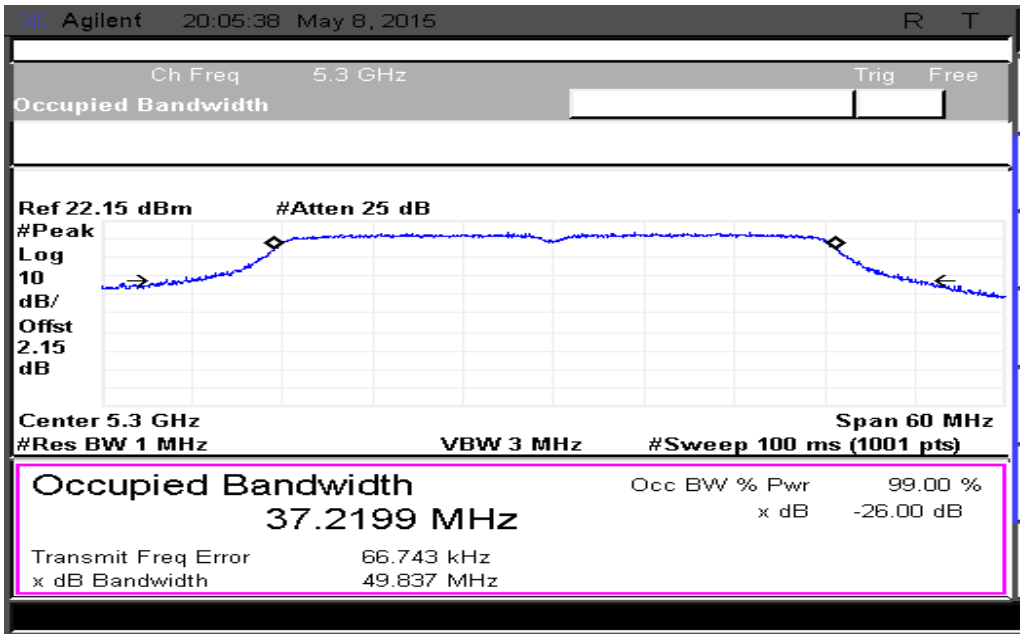

Figure 42: 99 Percent OBW measured at ch.0

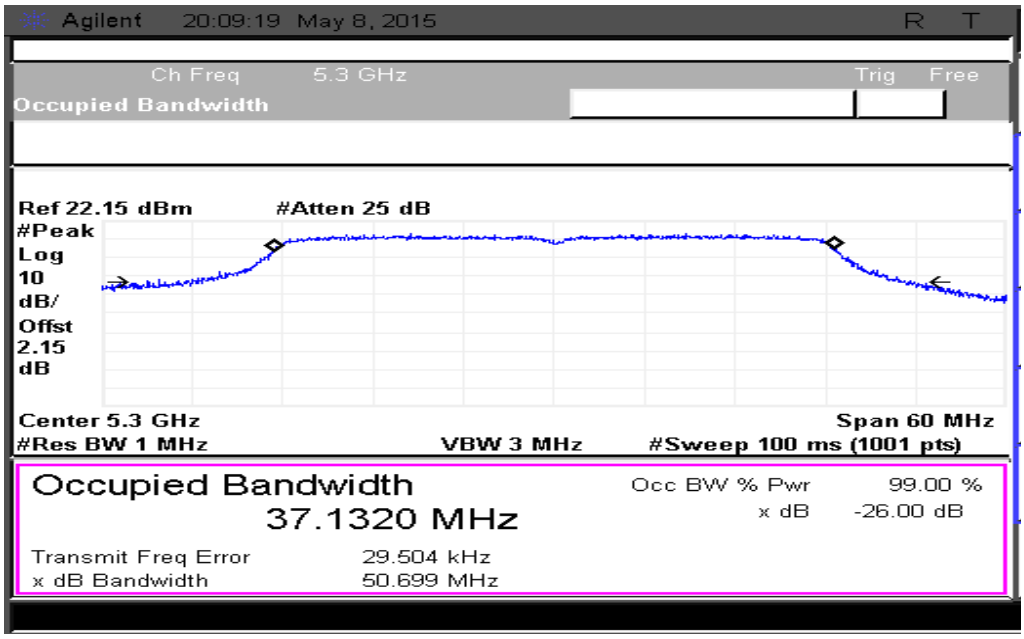

Figure 43: 99 Percent OBW measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.2.5.3 40MHz Modulation BW -High channel_5320MHz

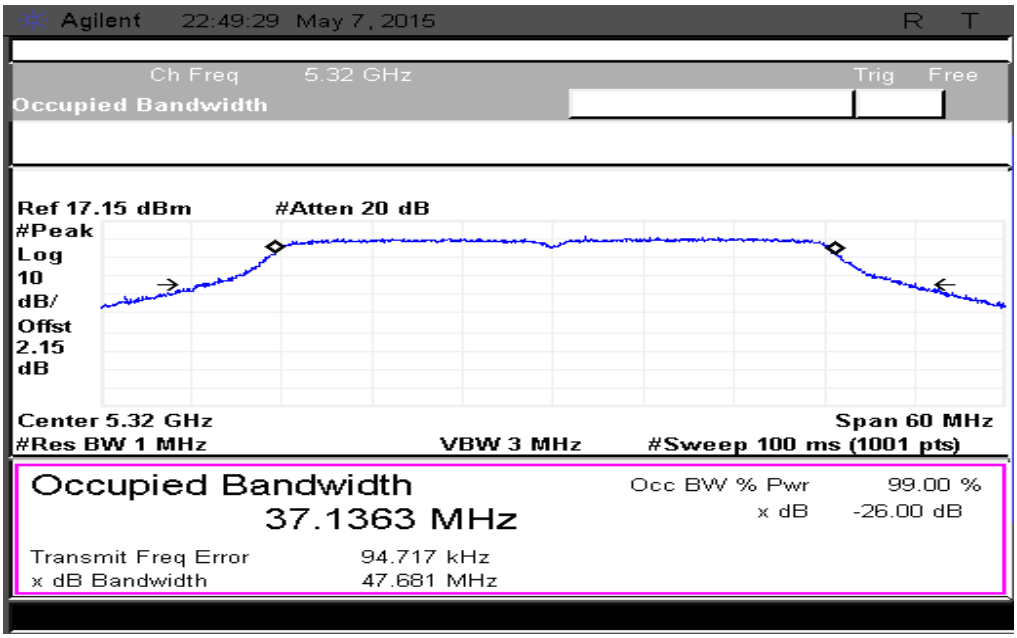

Figure 44: 99 Percent OBW measured at ch.0

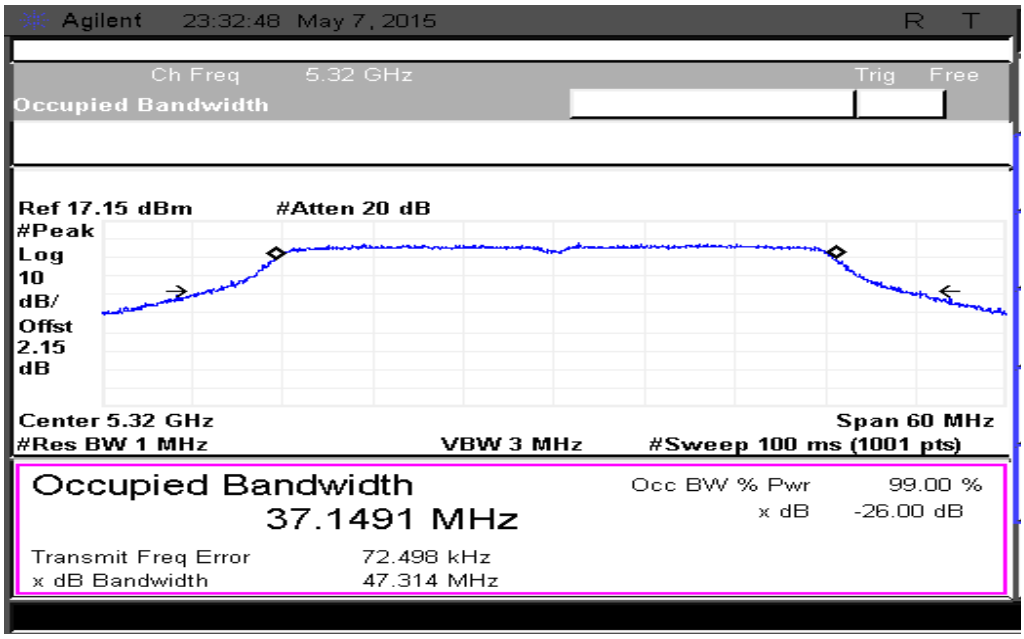

Figure 45: 99 Percent OBW measured at ch.1

5.3.2.5.4 10MHz Modulation BW-Low channel_5265MHz

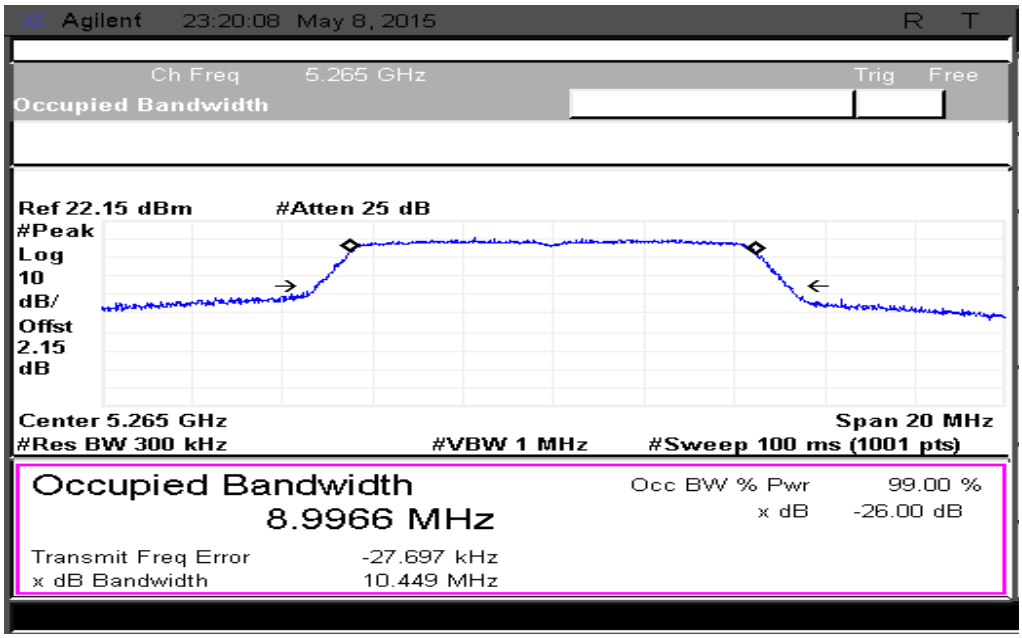

Figure 46: 99 Percent OBW measured at ch.0

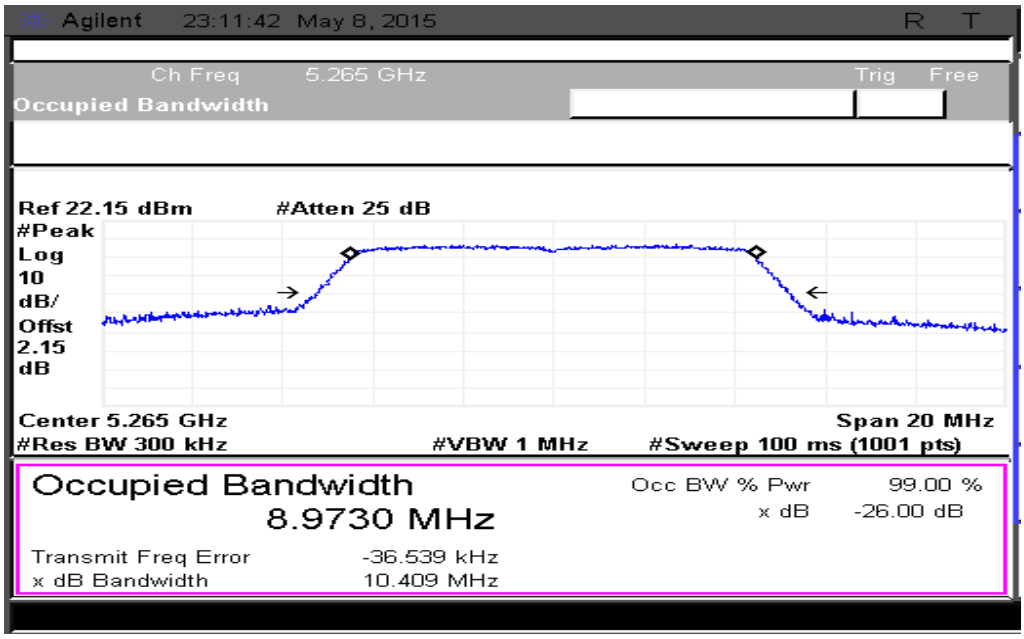

Figure 47: 99 Percent OBW measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.2.5.5 10MHz Modulation BW-Mid channel_5300MHz

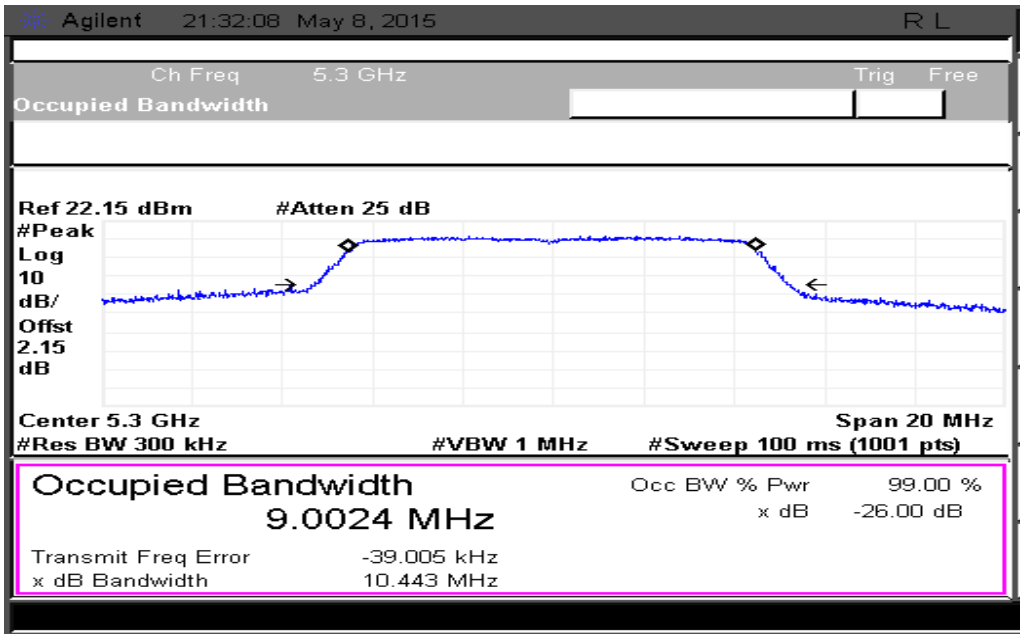

Figure 48: 99 Percent OBW measured at ch.0

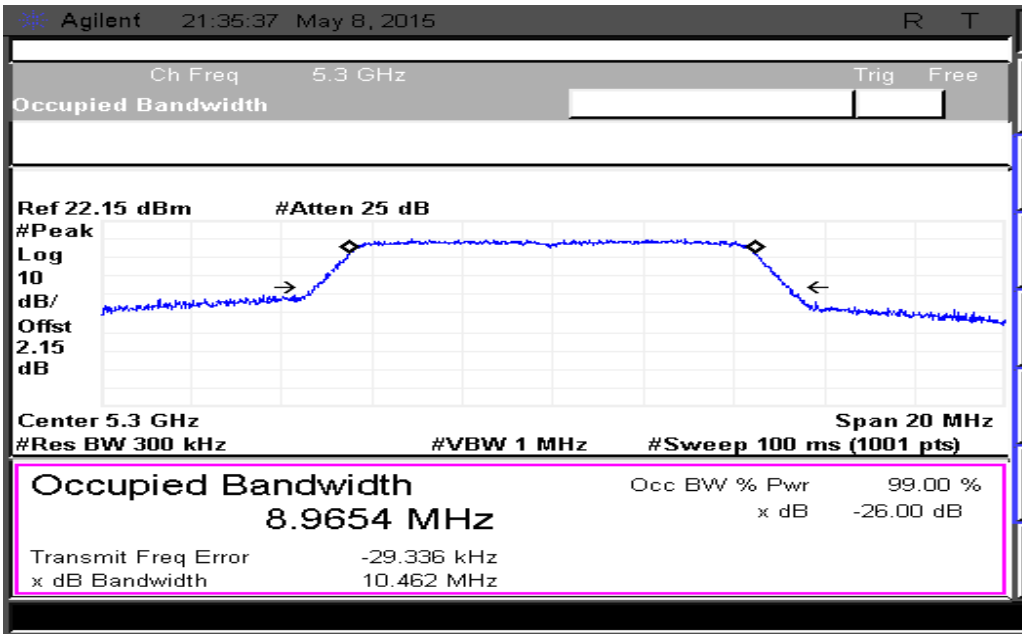

Figure 49: 99 Percent OBW measured at ch.1

5.3.2.5.6 10MHz Modulation BW-High channel_5335MHz

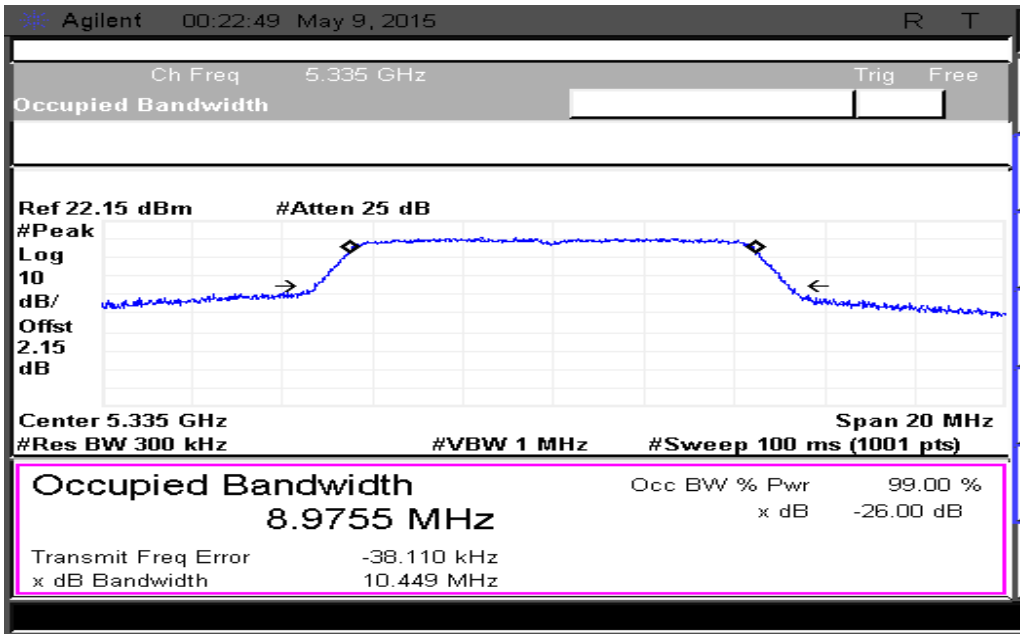

Figure 50: 99 Percent OBW measured at ch.0

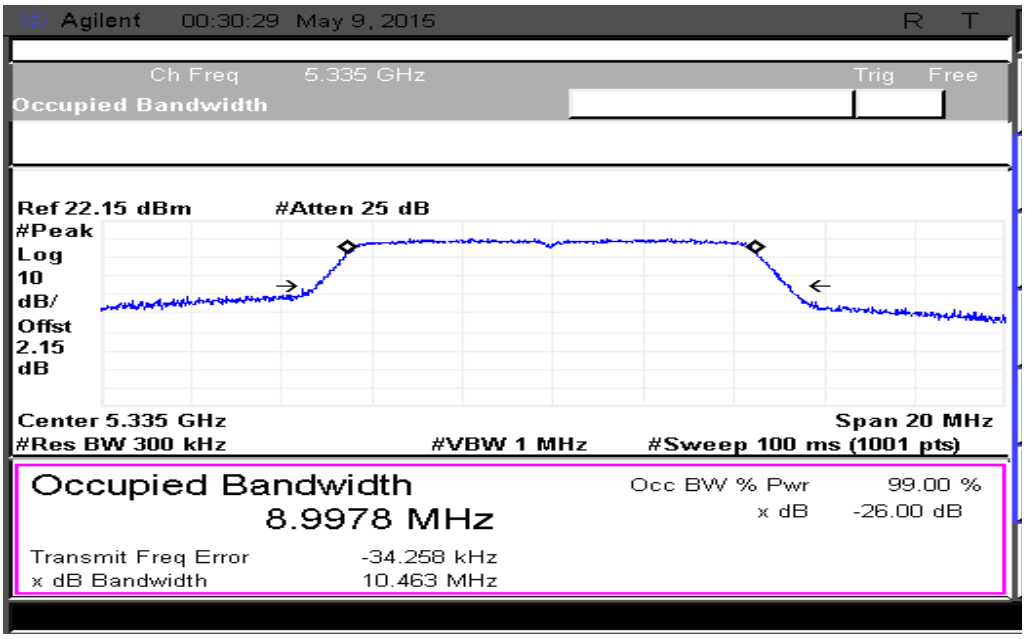

Figure 51: 99 Percent OBW measured at ch.1

5.3.2.6 RESULT (SUPPORTING GRAPHS / DATA) FOR 17DBI ANTENNA CONDITION

5.3.2.6.1 40MHZ MODULATION BW-LOW CHANNEL_5280 MHZ

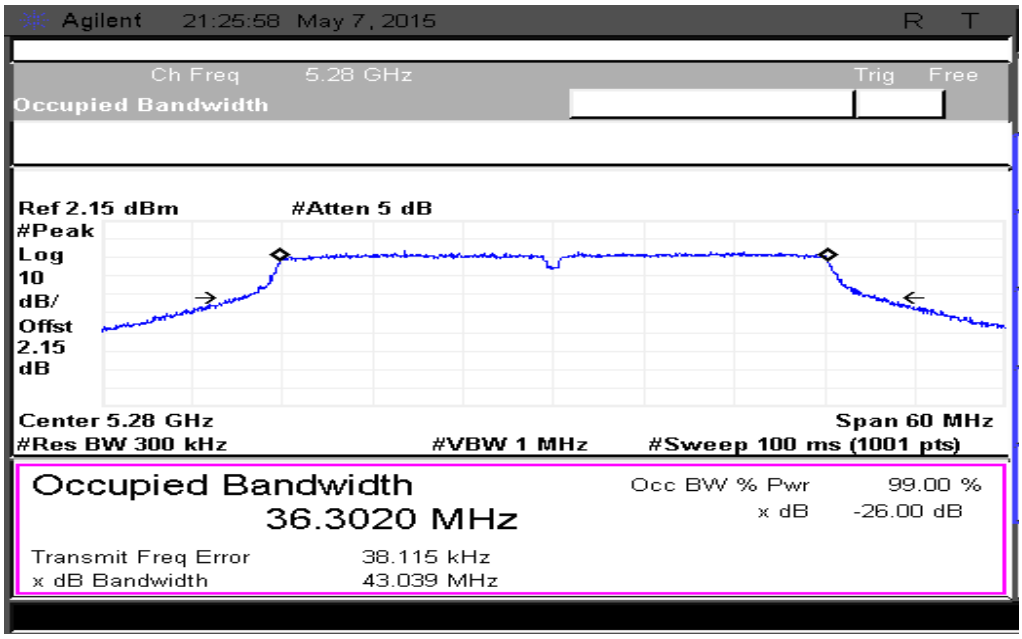

Figure 52: 99 Percent OBW measured at ch.0

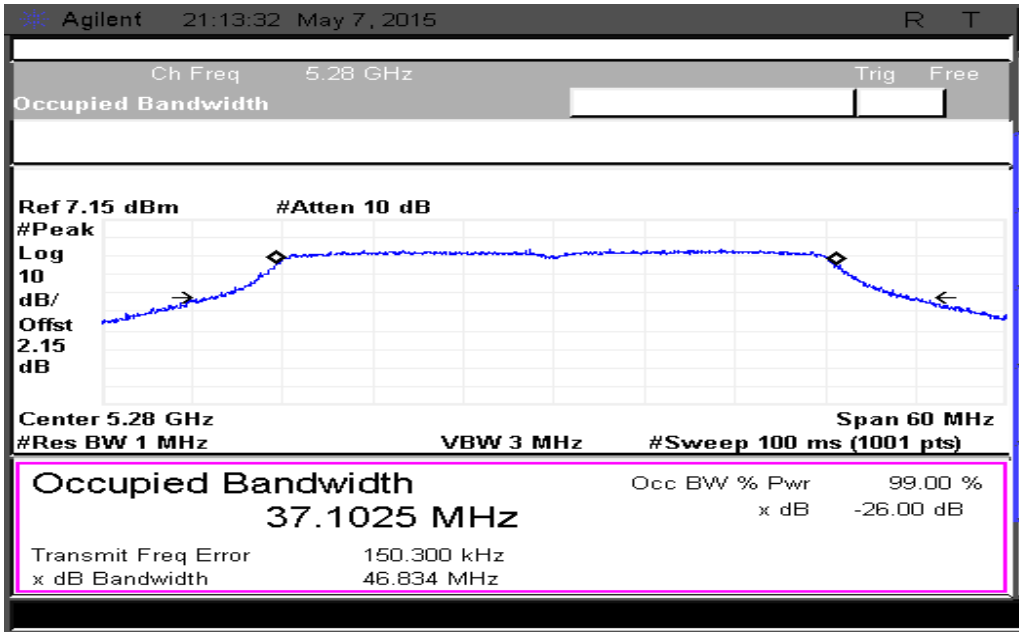

Figure 53: 99 Percent OBW measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.2.6.2 40MHz Modulation BW -Mid channel_5300 MHz

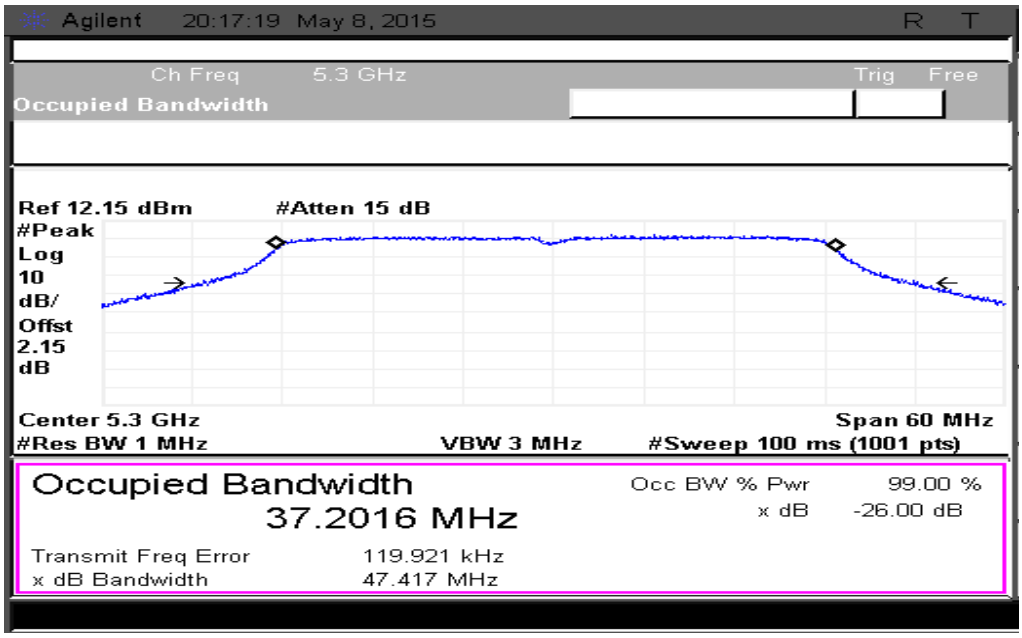

Figure 54: 99 Percent OBW measured at ch.0

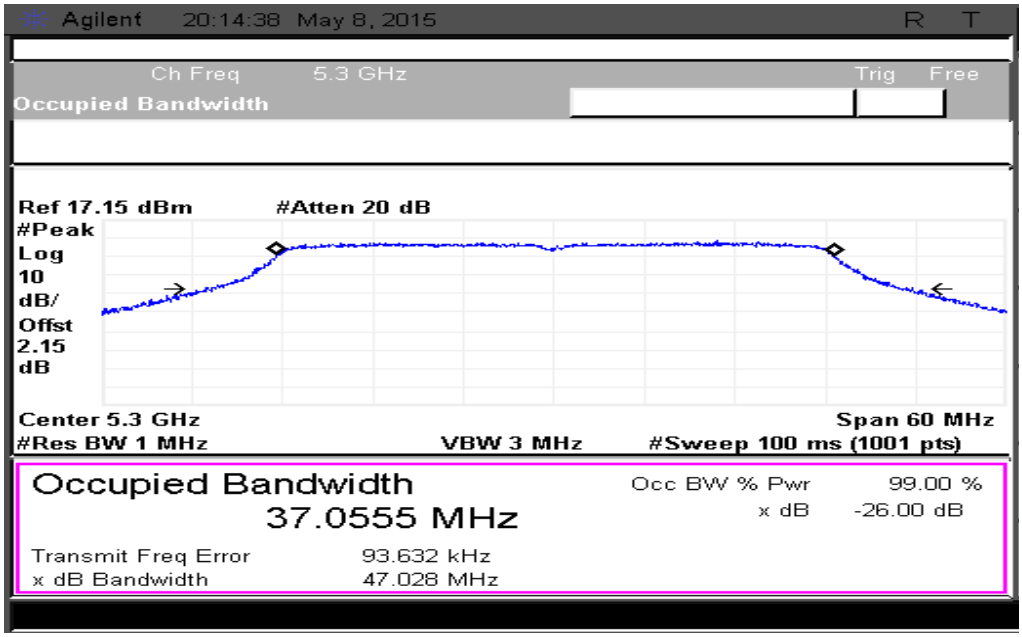

Figure 55: 99 Percent OBW measured at ch.1

5.3.2.6.3 40MHz Modulation BW -High channel_5320MHz

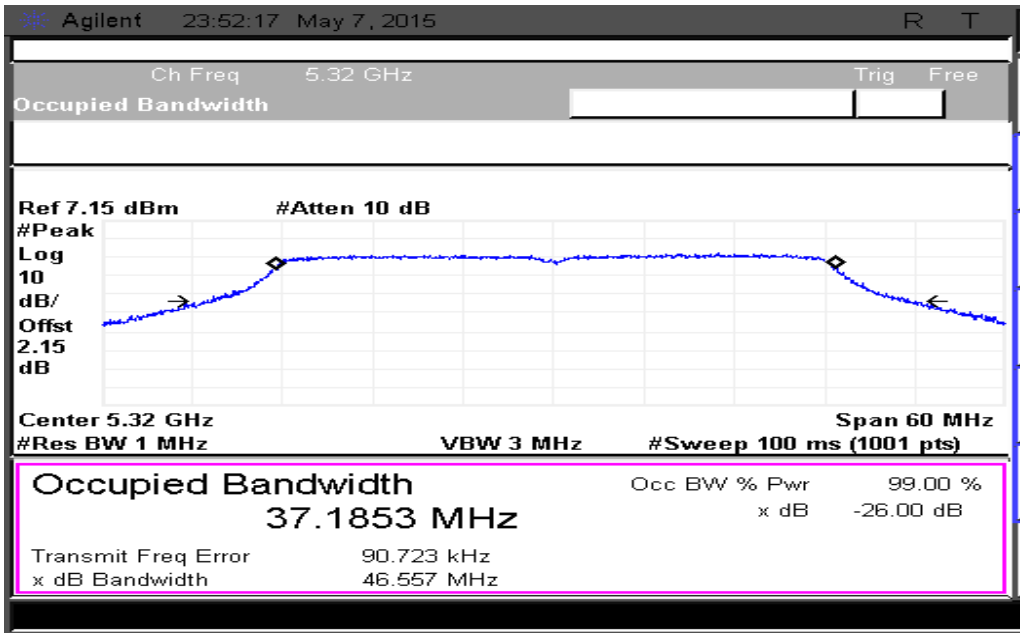

Figure 56: 99 Percent OBW measured at ch.0

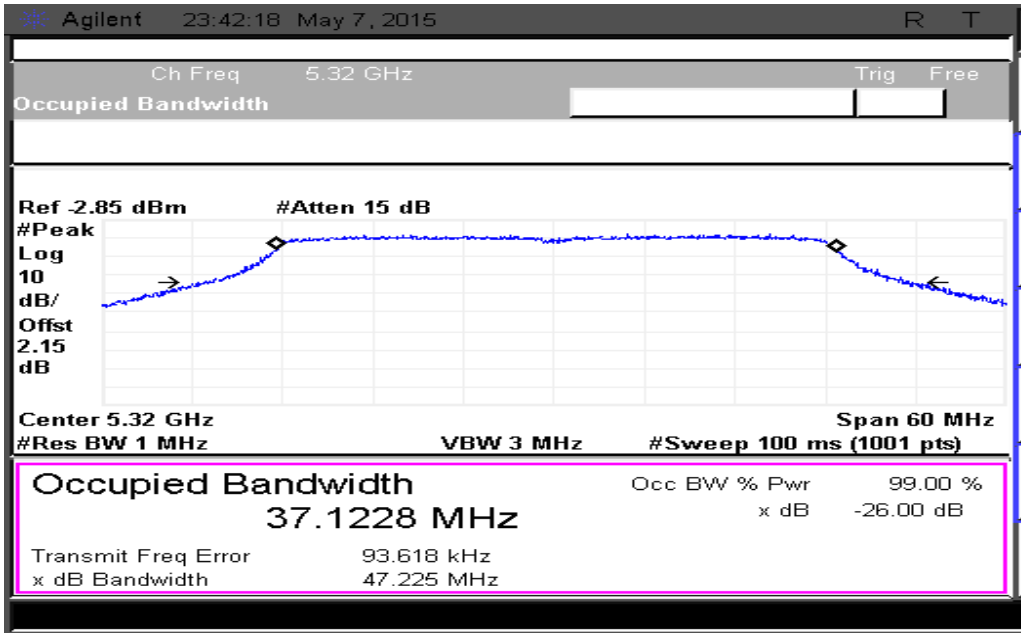

Figure 57: 99 Percent OBW measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.2.6.4 10MHz Modulation BW-Low channel_5265 MHz

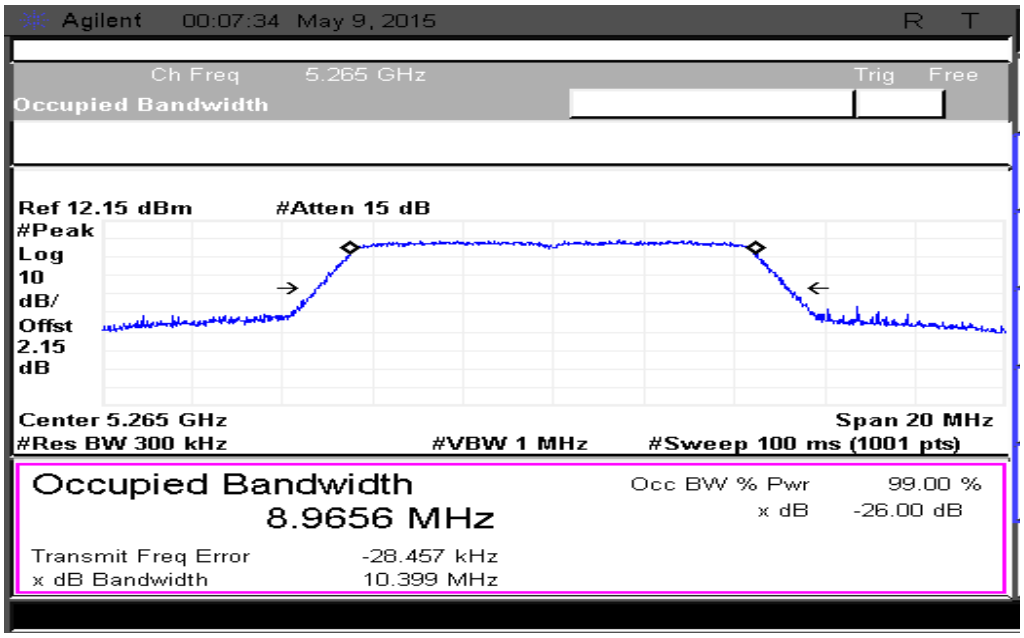

Figure 58: 99 Percent OBW measured at ch.0

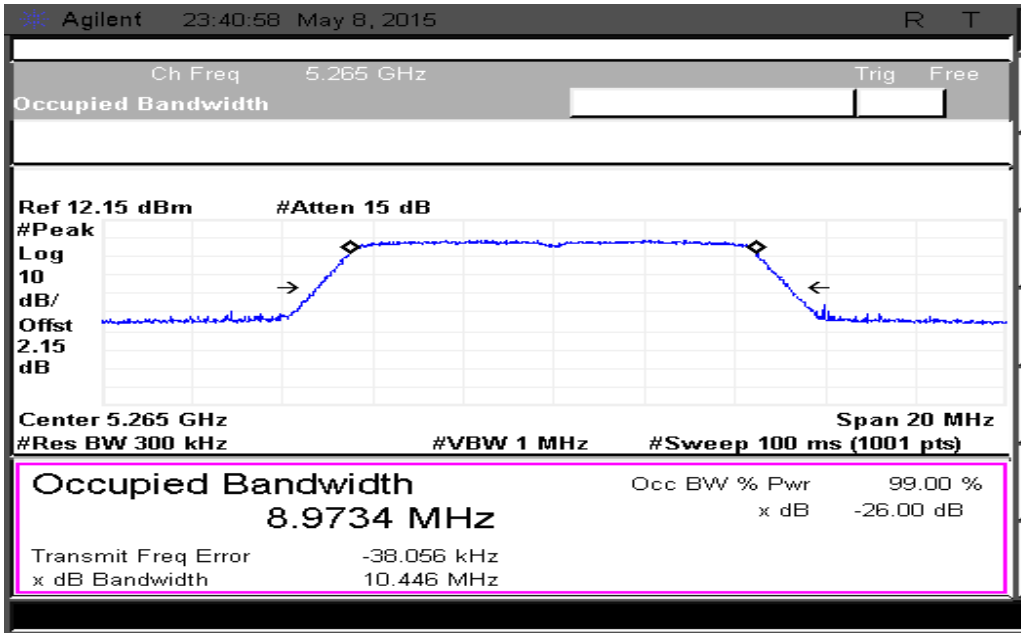

Figure 59: 99 Percent OBW measured at ch.1

5.3.2.6.5 10MHz Modulation BW-Mid channel_5300 MHz

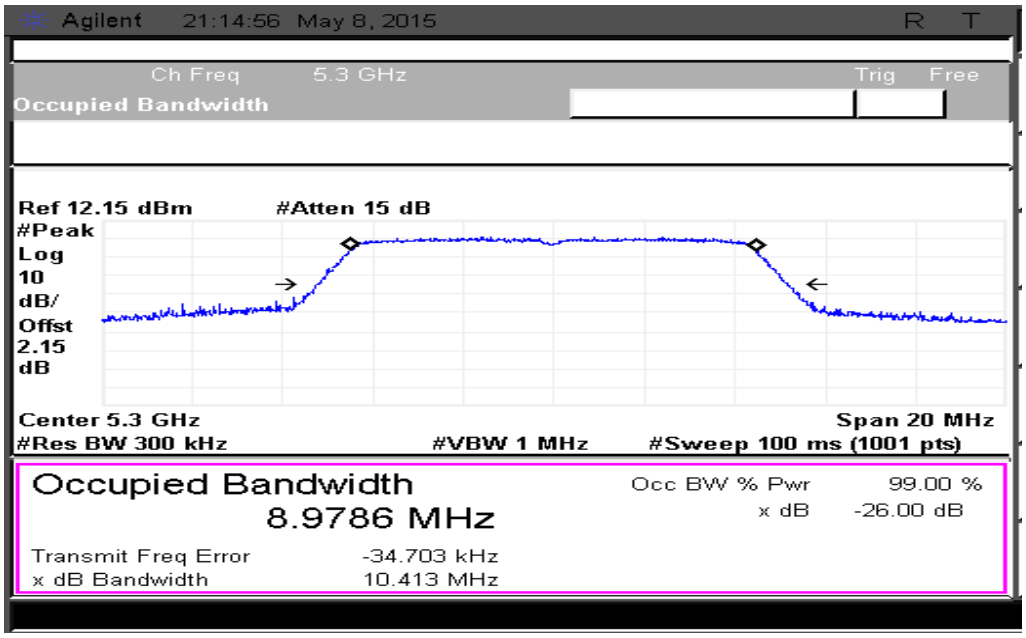

Figure 60: 99 Percent OBW measured at ch.0

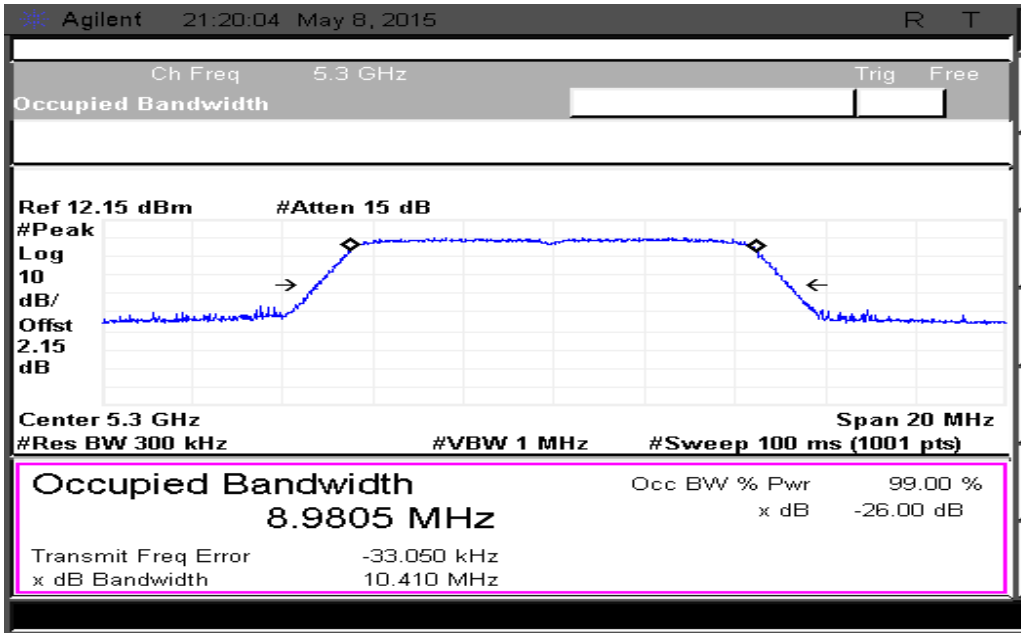

Figure 61: 99 Percent OBW measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.2.6.6 10MHz Modulation BW-High channel_5335 MHz

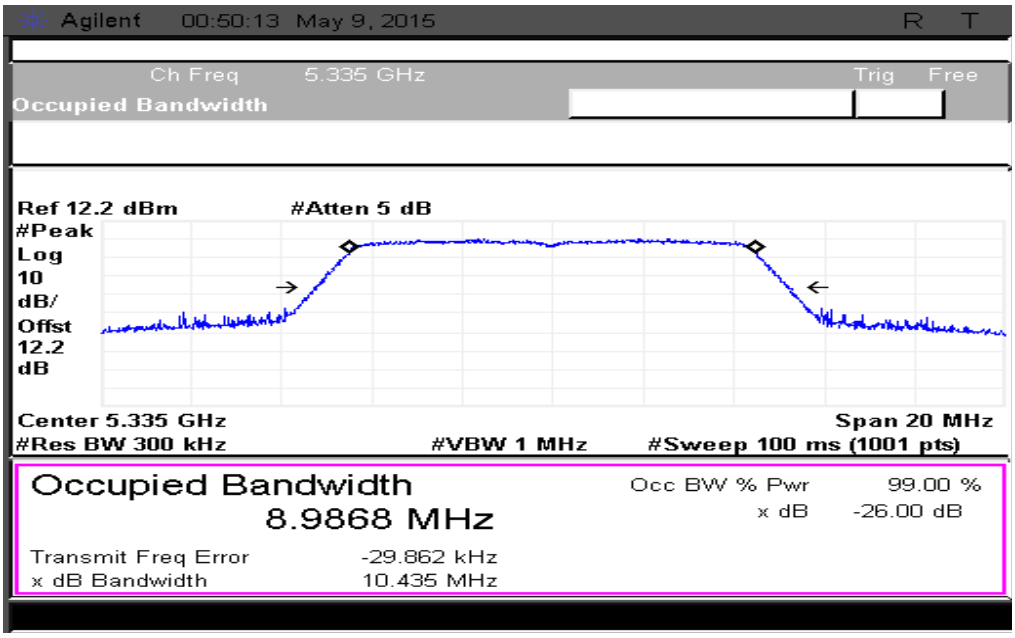

Figure 62: 99 Percent OBW measured at ch.0

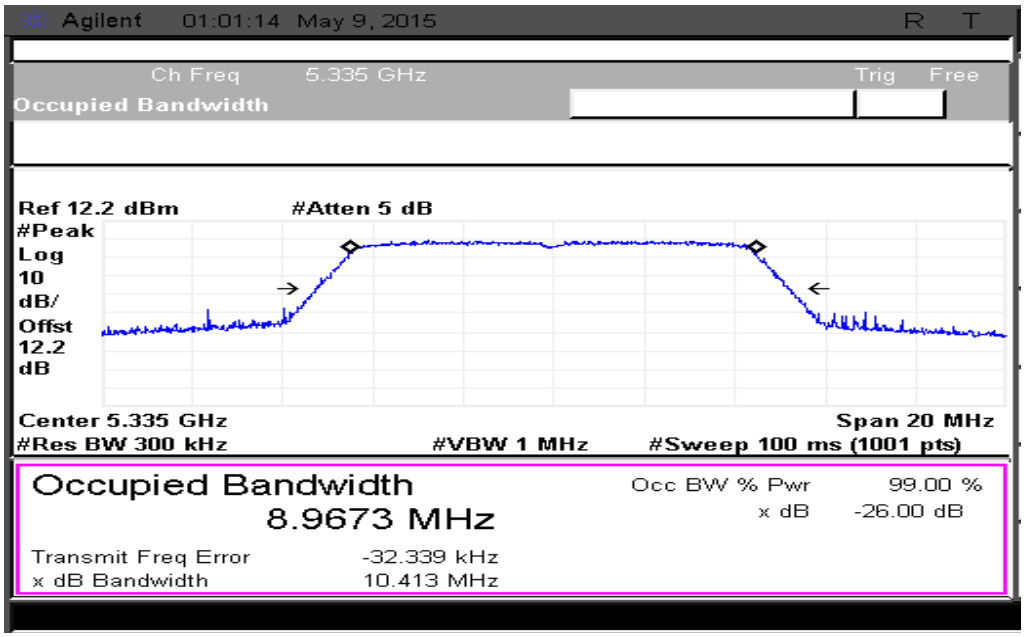

Figure 63: 99 Percent OBW measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.2.7 RESULT (SUPPORTING GRAPHS / DATA) FOR 24DBI DISH CONDITION

5.3.2.7.1 40MHZ MODULATION BW-LOW CHANNEL_5280 MHZ

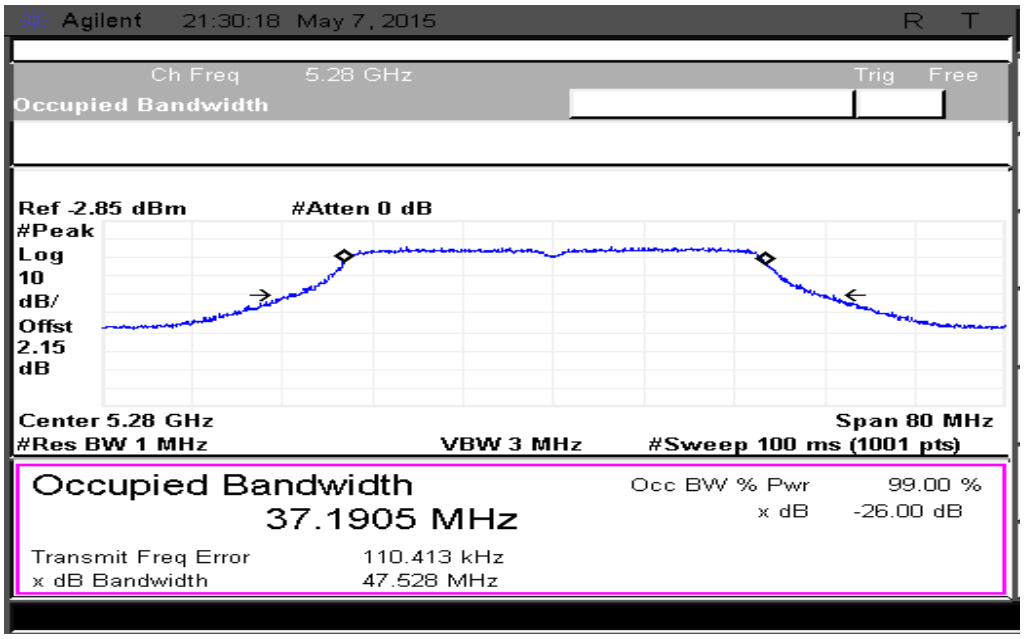

Figure 64: 99 Percent OBW measured at ch.0

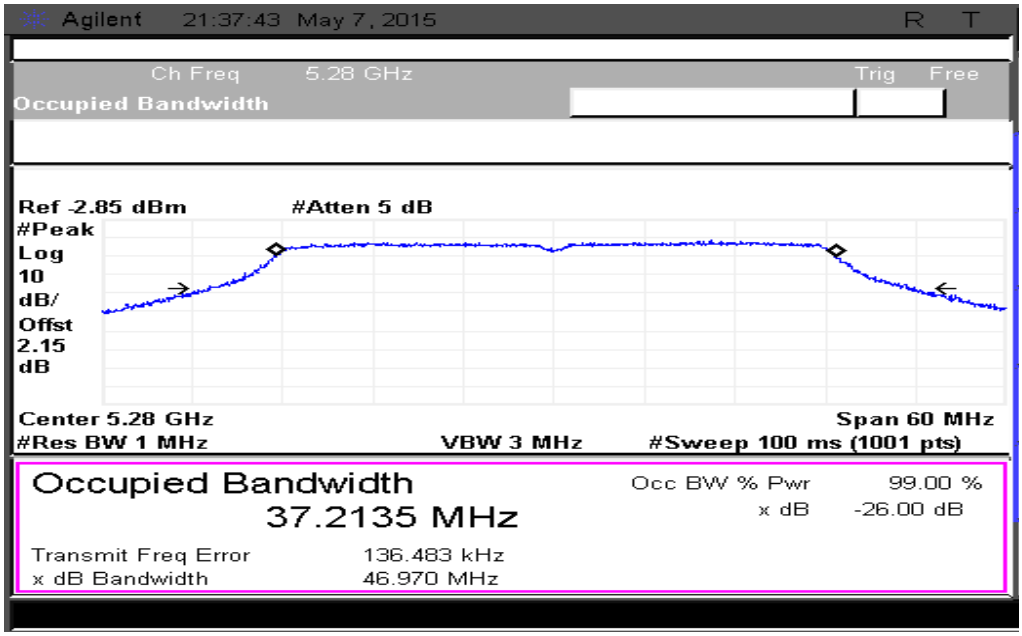

Figure 65: 99 Percent OBW measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.2.7.2 40MHz Modulation BW -Mid channel_5300 MHz

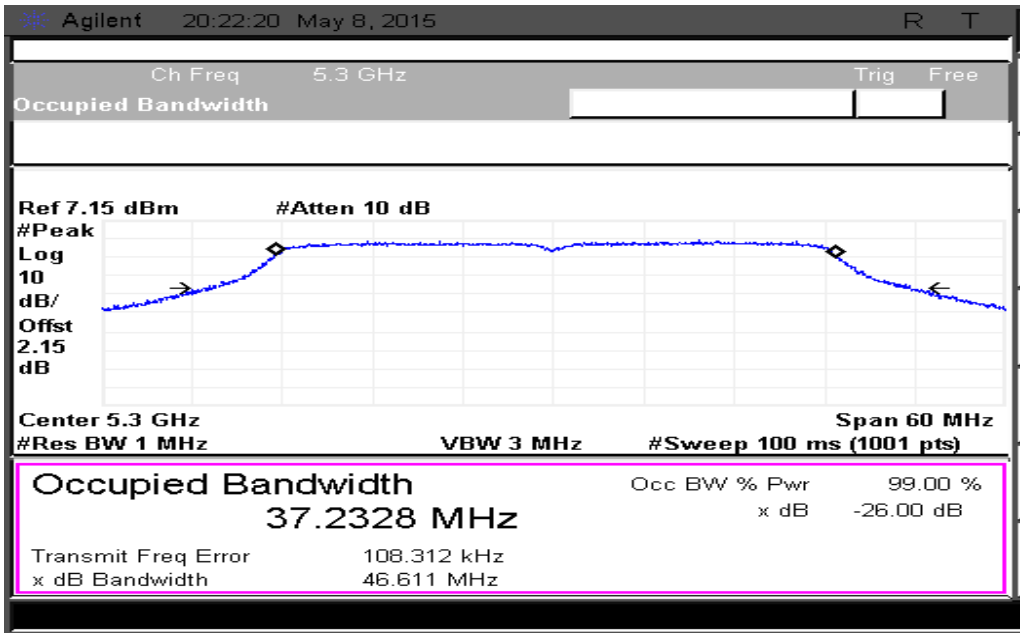

Figure 66: 99 Percent OBW measured at ch.0

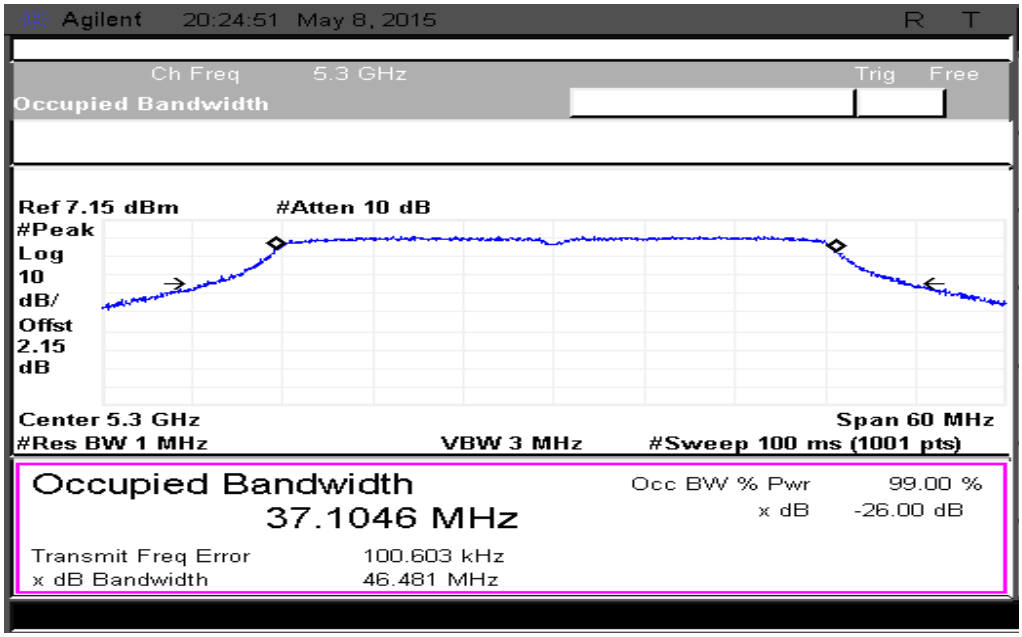

Figure 67: 99 Percent OBW measured at ch.1

5.3.2.7.3 40MHz Modulation BW -High channel_5320MHz

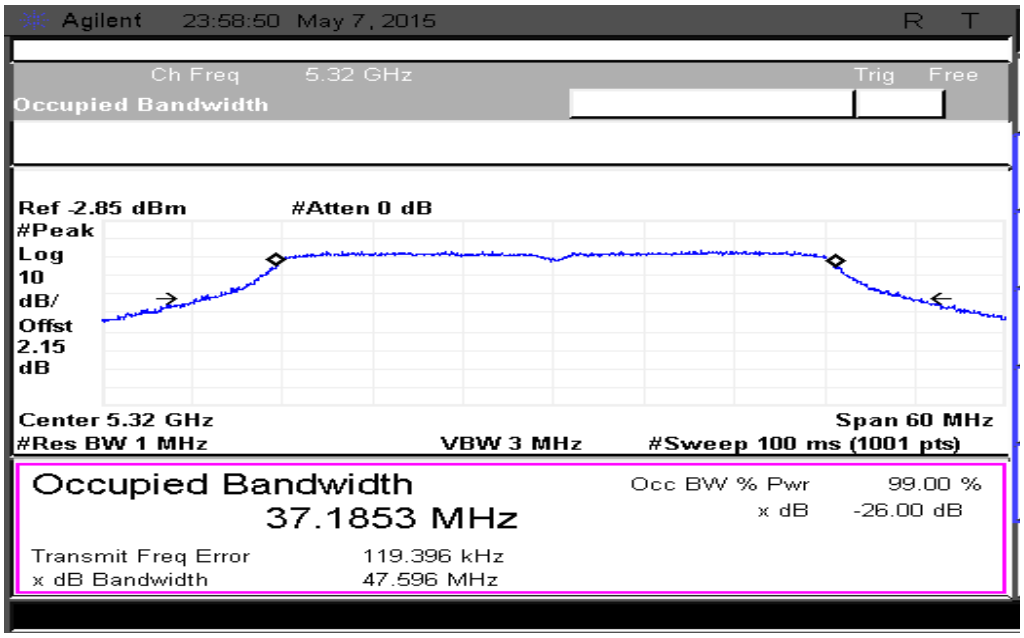

Figure 68: 99 Percent OBW measured at ch.0

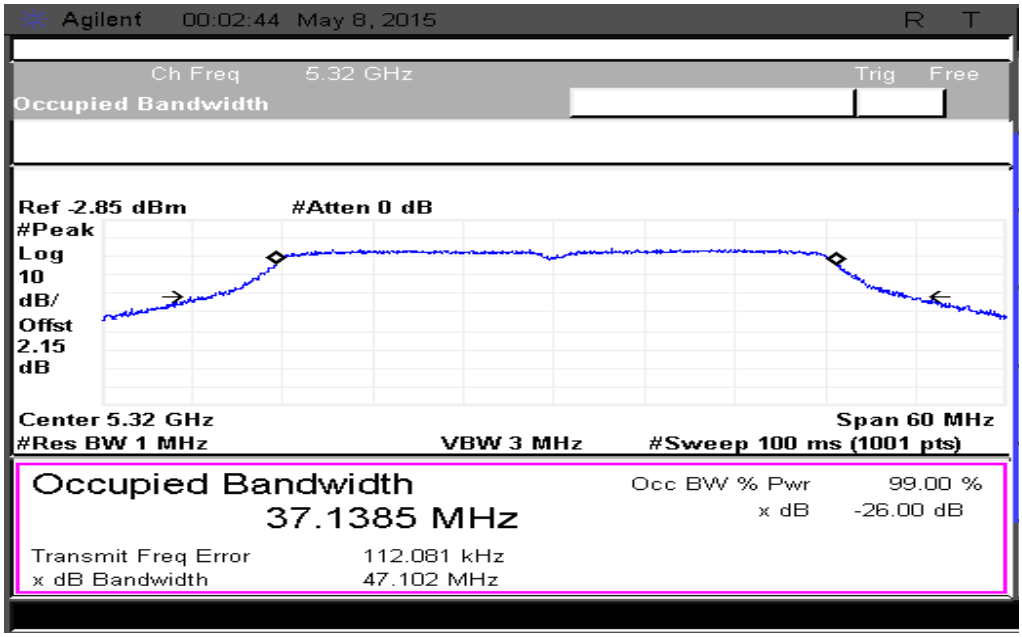

Figure 69: 99 Percent OBW measured at ch.1

5.3.2.7.4 10MHz Modulation BW-Low channel_5265 MHz

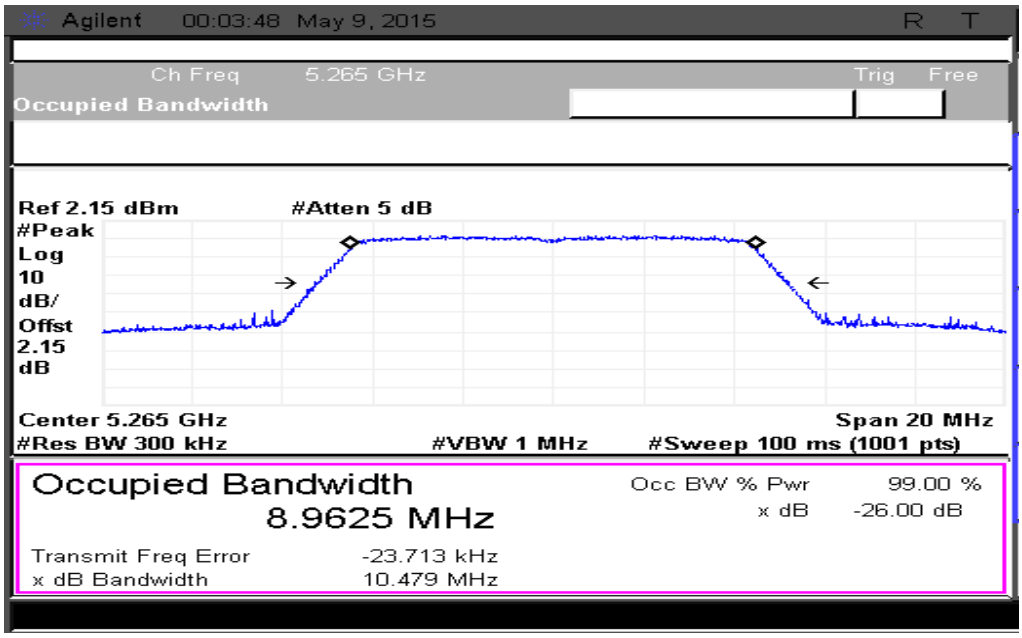

Figure 70: 99 Percent OBW measured at ch.0

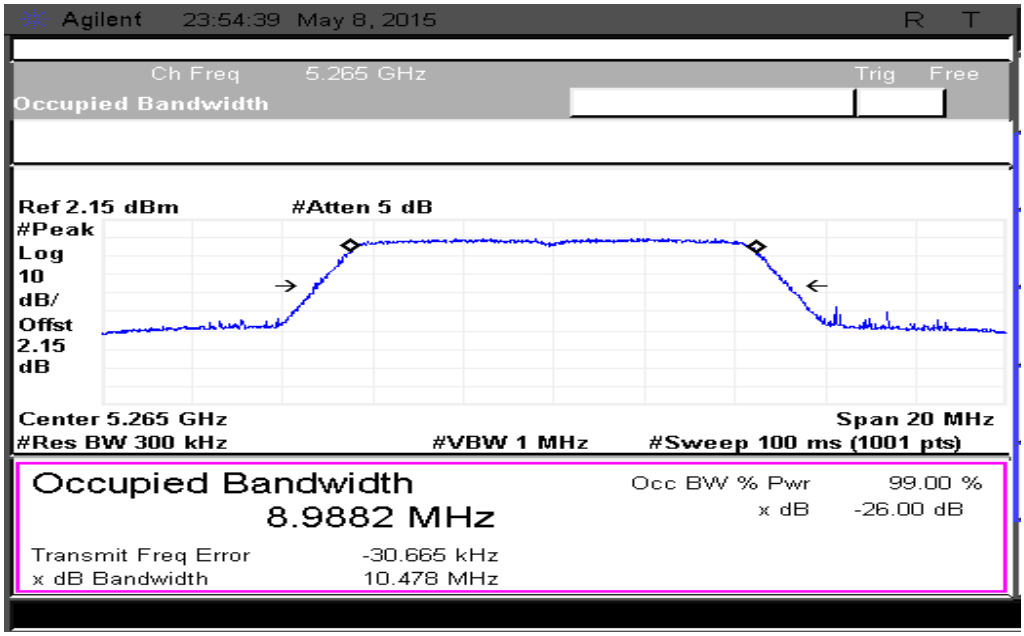

Figure 71: 99 Percent OBW measured at ch.1

5.3.2.7.5 10MHz Modulation BW-Mid channel_5300 MHz

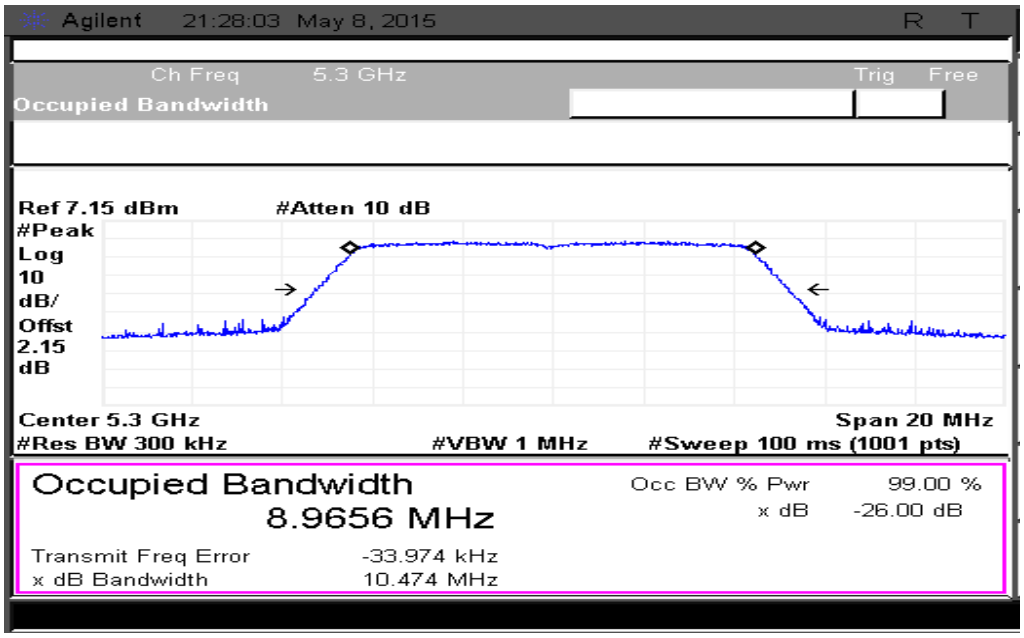

Figure 72: 99 Percent OBW measured at ch.0

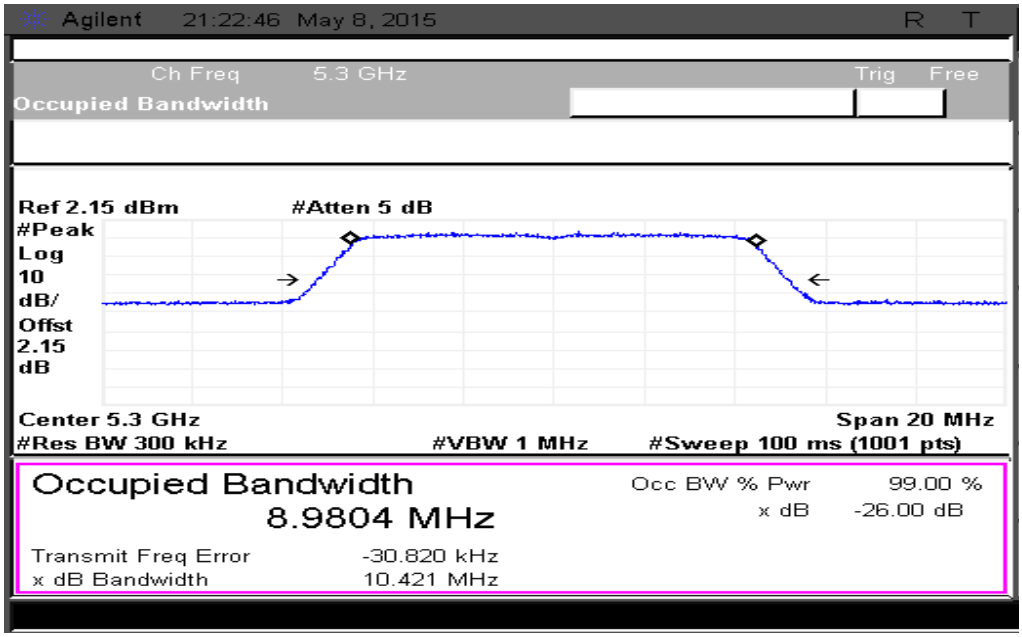

Figure 73: 99 Percent OBW measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.2.7.6 10MHz Modulation BW-High channel_5335 MHz

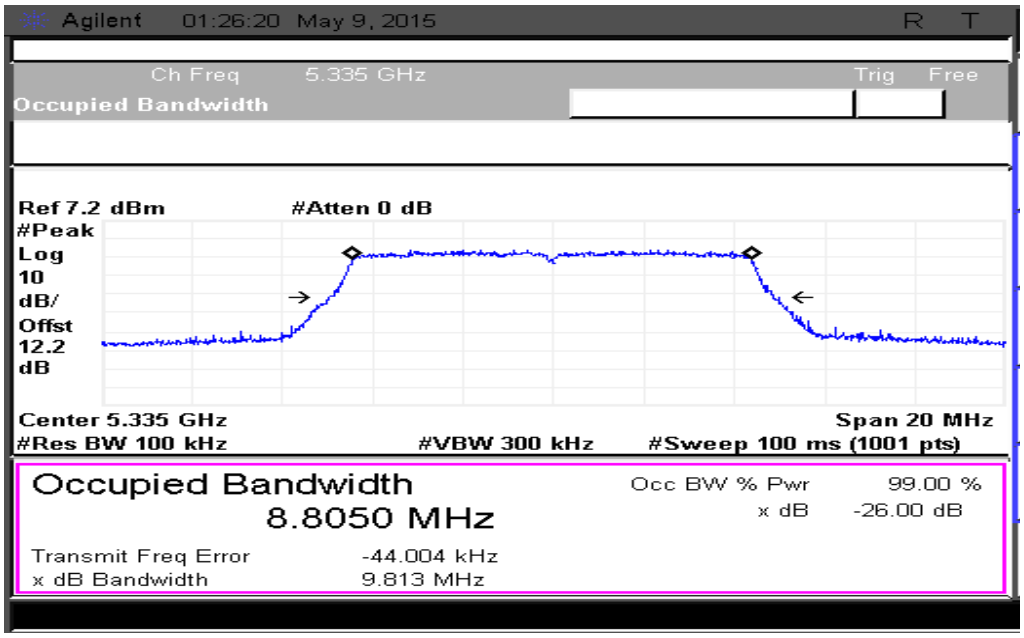

Figure 74: 99 Percent OBW measured at ch.0

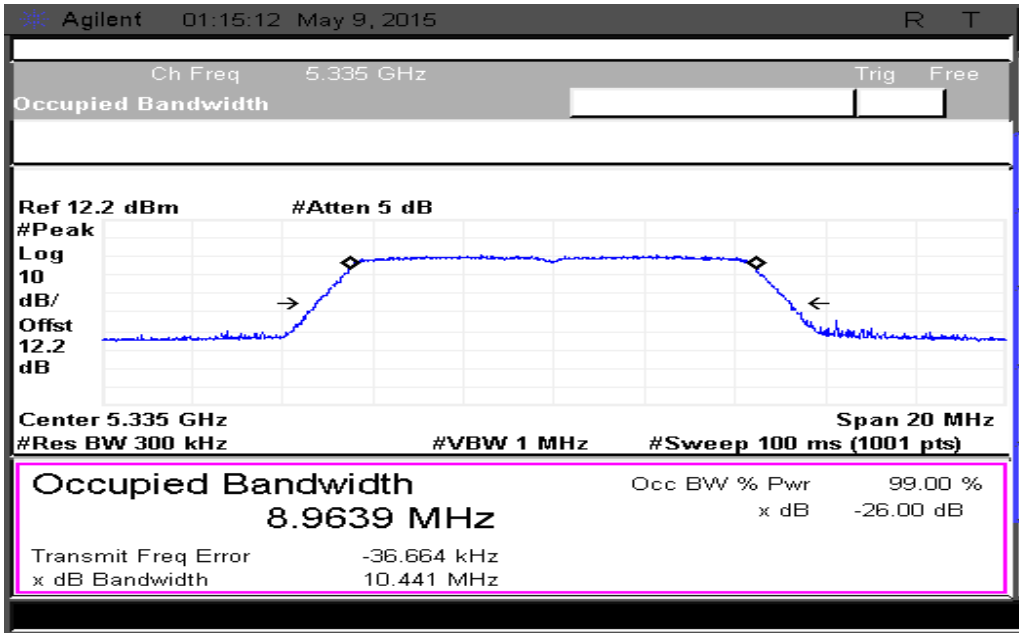

Figure 75: 99 Percent OBW measured at ch.1

5.3.2.8 RESULT

99 Percent Occupied Bandwidth for all channels in both 40MHz & 10MHz Modulation Bandwidths has been measured and tabulated in below table.

Test Condition	Modulation Bandwidth (MHz)	Antenna path	Channel Frequency (MHz)	Recorded value (MHz)
Basic	40	Ch. 0	5280	37.1850
Basic	40	Ch. 0	5300	37.2199
Basic	40	Ch. 0	5320	37.1363
Basic	40	Ch. 1	5280	37.1426
Basic	40	Ch. 1	5300	37.1320
Basic	40	Ch. 1	5320	37.1491
Basic	10	Ch. 0	5265	8.9966
Basic	10	Ch. 0	5300	9.0024
Basic	10	Ch. 0	5335	8.9755
Basic	10	Ch. 1	5265	8.9730
Basic	10	Ch. 1	5300	8.9654
Basic	10	Ch. 1	5335	8.9978
17dBi Antenna	40	Ch. 0	5280	36.3020
17dBi Antenna	40	Ch. 0	5300	37.2016
17dBi Antenna	40	Ch. 0	5320	37.1853
17dBi Antenna	40	Ch. 1	5280	37.1025
17dBi Antenna	40	Ch. 1	5300	37.0555
17dBi Antenna	40	Ch. 1	5320	37.1228
17dBi Antenna	10	Ch. 0	5265	8.9656
17dBi Antenna	10	Ch. 0	5300	8.9786
17dBi Antenna	10	Ch. 0	5335	8.9868
17dBi Antenna	10	Ch. 1	5265	8.9734
17dBi Antenna	10	Ch. 1	5300	8.9805
17dBi Antenna	10	Ch. 1	5335	8.9673
24dBi Dish	40	Ch. 0	5280	37.1905
24dBi Dish	40	Ch. 0	5300	37.2328
24dBi Dish	40	Ch. 0	5320	37.1853
24dBi Dish	40	Ch. 1	5280	37.2135
24dBi Dish	40	Ch. 1	5300	37.1046
24dBi Dish	40	Ch. 1	5320	37.1385
24dBi Dish	10	Ch. 0	5265	8.9625
24dBi Dish	10	Ch. 0	5300	8.9656
24dBi Dish	10	Ch. 0	5335	8.8050
24dBi Dish	10	Ch. 1	5265	8.9882
24dBi Dish	10	Ch. 1	5300	8.9804
24dBi Dish	10	Ch. 1	5335	8.9639

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.3 MAXIMUM CONDUCTED OUTPUT POWER

5.3.3.1 TEST SPECIFICATION

Test Standard	47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C RSS-Gen, Issue 4, Nov 2014
Test Procedure	ANSI C63.10-2013
Resolution Bandwidth	1 MHz
Video Bandwidth	3 MHz
Sweep Time	100ms
Attenuation	Auto
Test Mode	Conducted
Detector	Average
Input Voltage	120V AC
Input Frequency	60 Hz
Temperature	22.0°C
Humidity	56.0%
Tested By	Subhendu
Test Date	12th Mar 2015 to 28th Apr 2015

5.3.3.2 LIMITS

As per 15.407 (a) (2) we need to select 250mW (24dBm) limit or 11+ 10log(B) dBm whichever is lower.
Where, B is 26dB emission bandwidth

Below limit is used if the transmit antenna gain is less than 6dBi

Modulation Bandwidth (MHz)	Fixed Limit as per standard (dBm)	Calculated Limit (dBm)	Limit to be considered (2 chains) (dBm)	Limit to be considered (1 chain) (dBm)
40	24	27.02059991	24	21
10	24	21	21	18

For Cambium, we have 17dBi External antenna. So limits to be considered as per below table

Modulation Bandwidth (MHz)	Limit as per above table (dBm)	Limit to be considered (2 chains) (dBm)	Limit to be considered (1 chain) (dBm)
40	24	13	10
10	21	10	7

Here the limit is reduced by 11dBm as per clause given in standard that if antenna gain is more than 6dBi, the limit should be reduced by the amount in dB that the gain of the antenna exceeds 6dBi.

Also we have 24dBi dish. So limits to be considered as per below table

Modulation Bandwidth (MHz)	Limit as per above table (dBm)	Limit to be considered (2 chains) (dBm)	Limit to be considered (1 chain) (dBm)
40	24	6	3
10	21	3	0

Here the limit is reduced by 18dBm as per clause given in standard that if antenna gain is more than 6dBi, the limit should be reduced by the amount in dB that the gain of the antenna exceeds 6dBi.

5.3.3.3 TEST SETUP

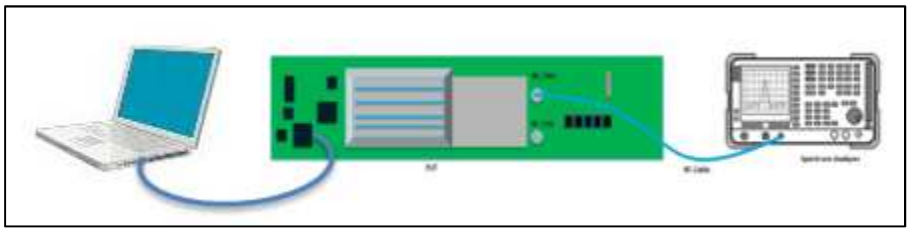

Figure 76: Typical test setup for Conducted RF Test setup

5.3.3.4 TEST PROCEDURE

The Conducted test was performed using the Spectrum analyzer. Measurements were done as per the **"789033 D01 General UNII Test Procedures Old Rules v01r04".** The RF output of the EUT was connected to the input port of Spectrum analyzer using an attenuator. Captured the data from spectrum analyzer and compared with the limits specified in the standard.

5.3.3.5 RESULT (SUPPORTING GRAPHS / DATA) FOR BASIC CONDITION

5.3.3.5.1 40MHZ MODULATION BW-LOW CHANNEL_5280MHZ

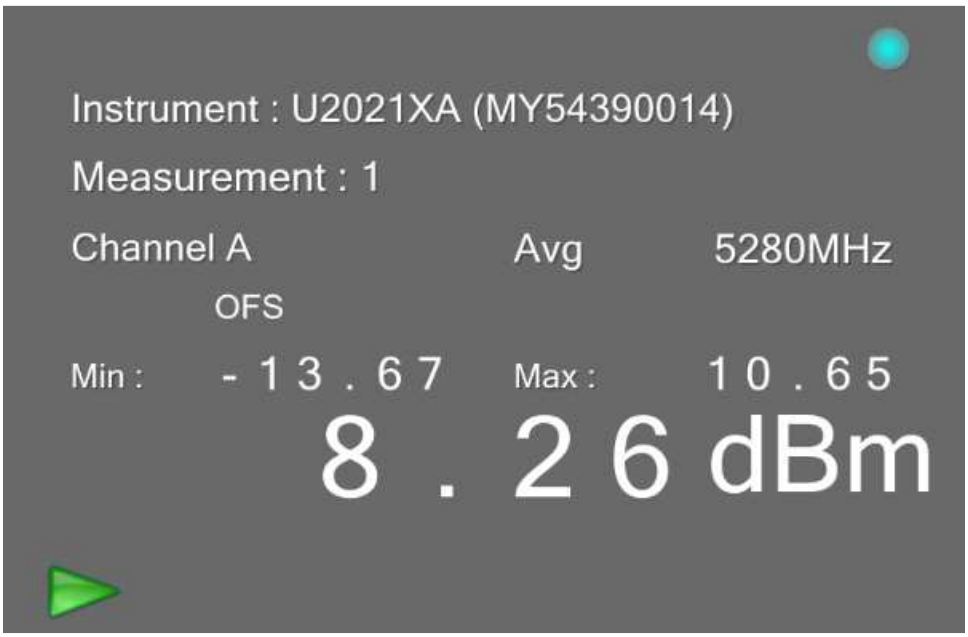

Figure 77: Maximum Conducted Output power measured at ch.0

Figure 78: Maximum Conducted Output power measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.3.5.2 40MHz Modulation BW-Mid channel_5300MHz

Figure 79: Maximum Conducted Output power measured at ch.0

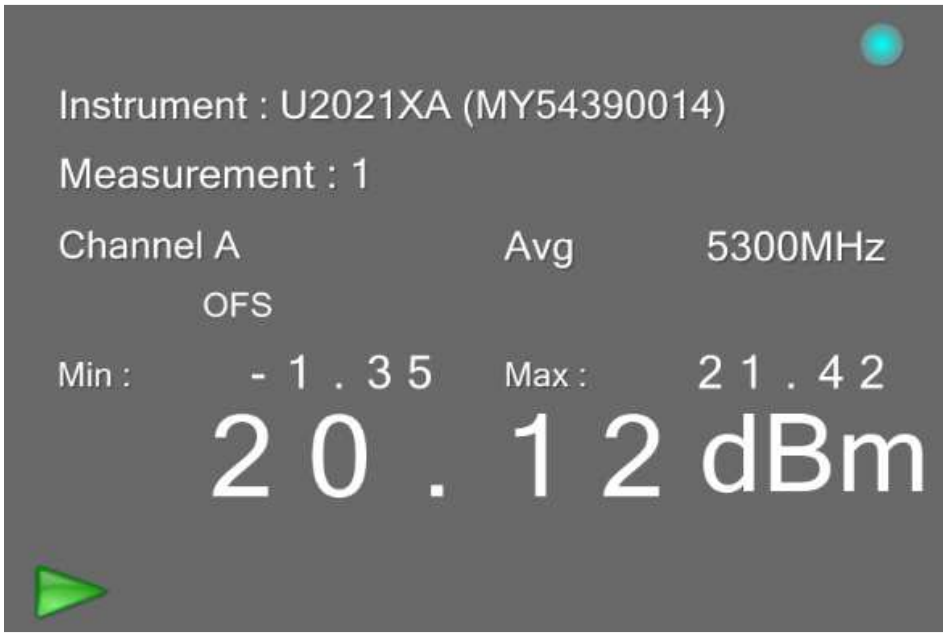

Figure 80: Maximum Conducted Output power measured at ch.1

5.3.3.5.3 40MHz Modulation BW-High channel_5320MHz

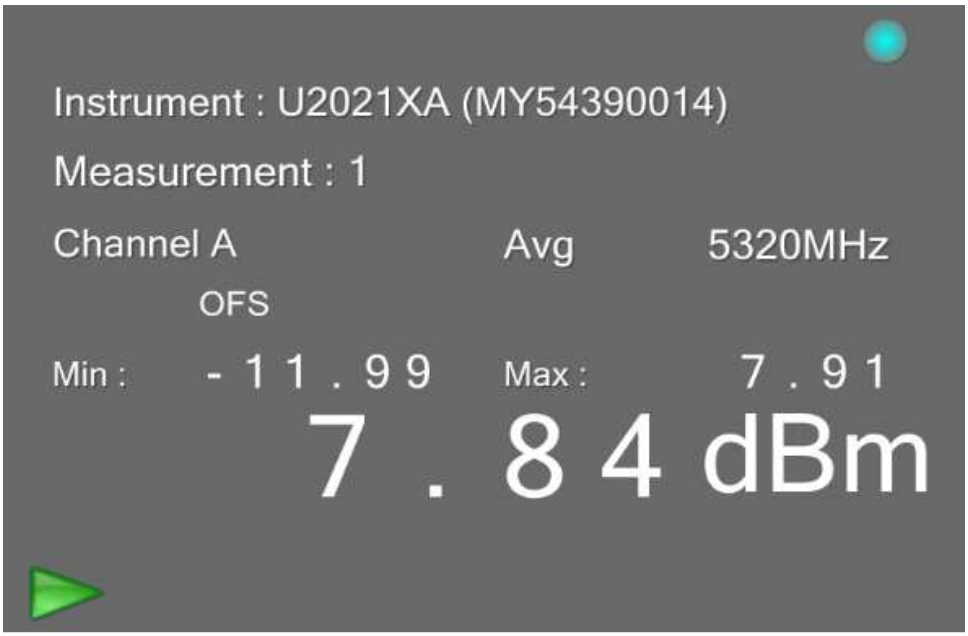

Figure 81: Maximum Conducted Output power measured at ch.0

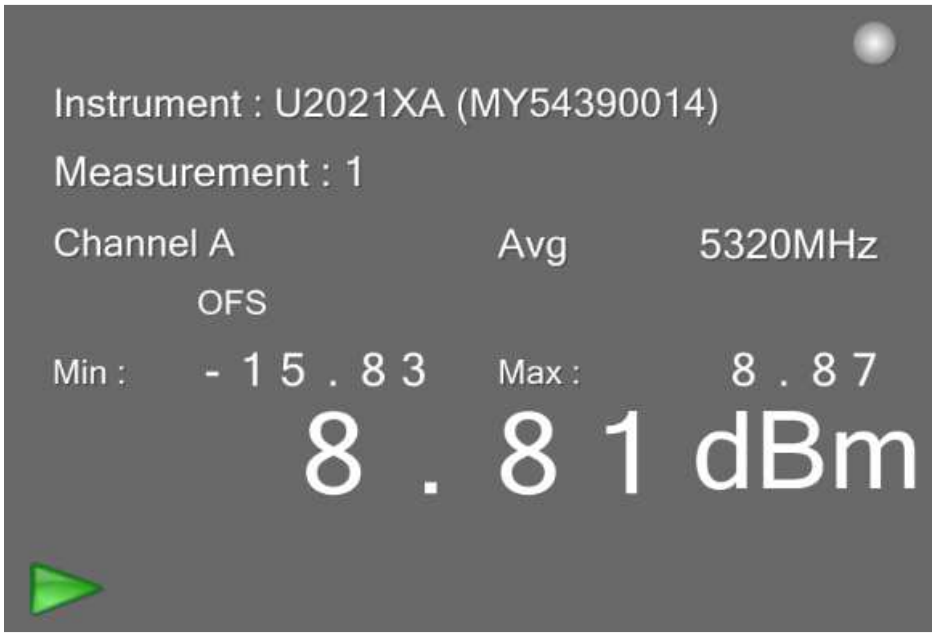

Figure 82: Maximum Conducted Output power measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.3.5.4 10MHz Modulation BW-Low channel_5265 MHz

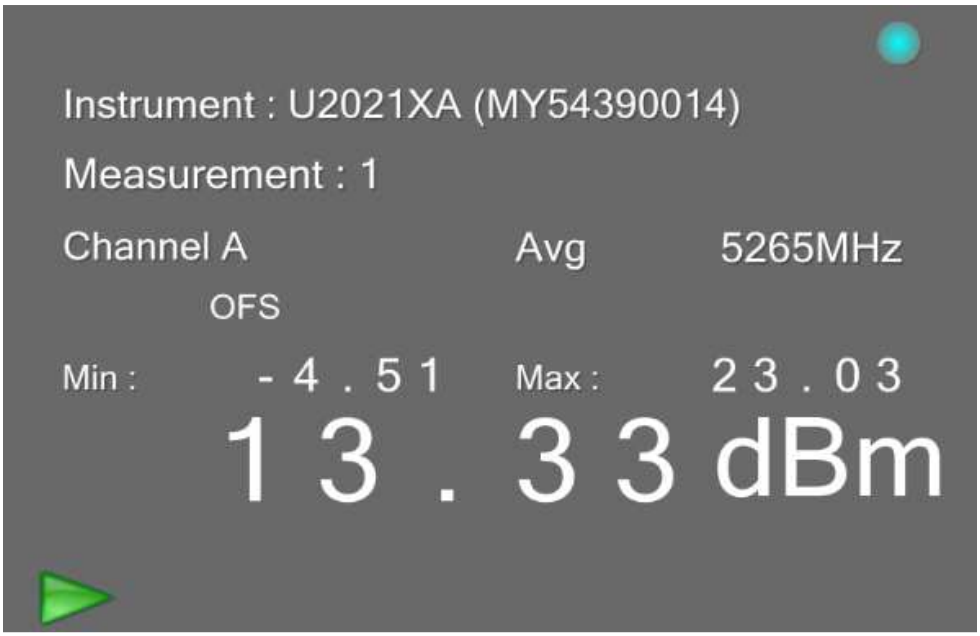

Figure 83: Maximum Conducted Output power measured at ch.0

Figure 84: Maximum Conducted Output power measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.3.5.5 10MHz Modulation BW-Mid channel_5300 MHz

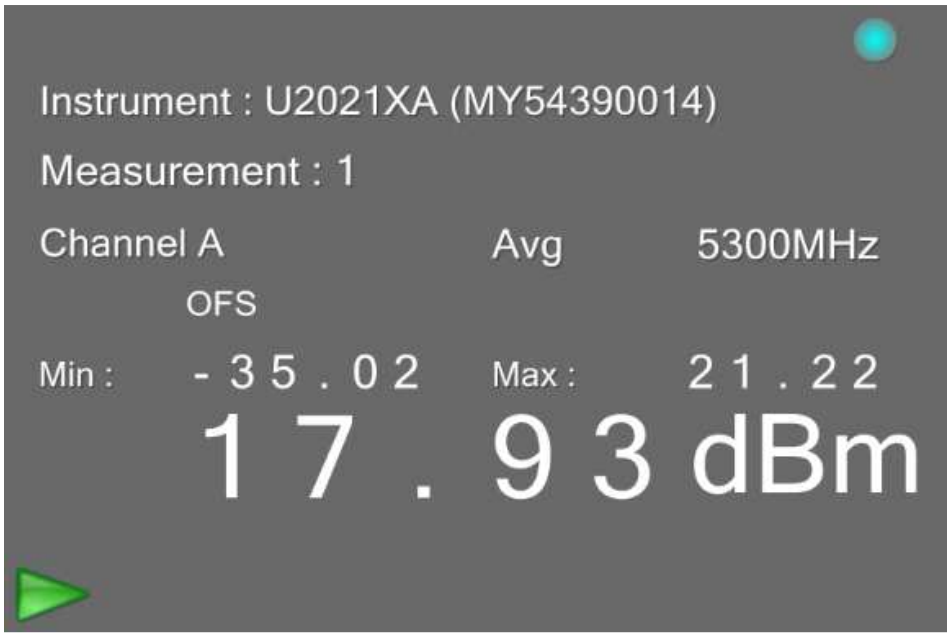

Figure 85: Maximum Conducted Output power measured at ch.0

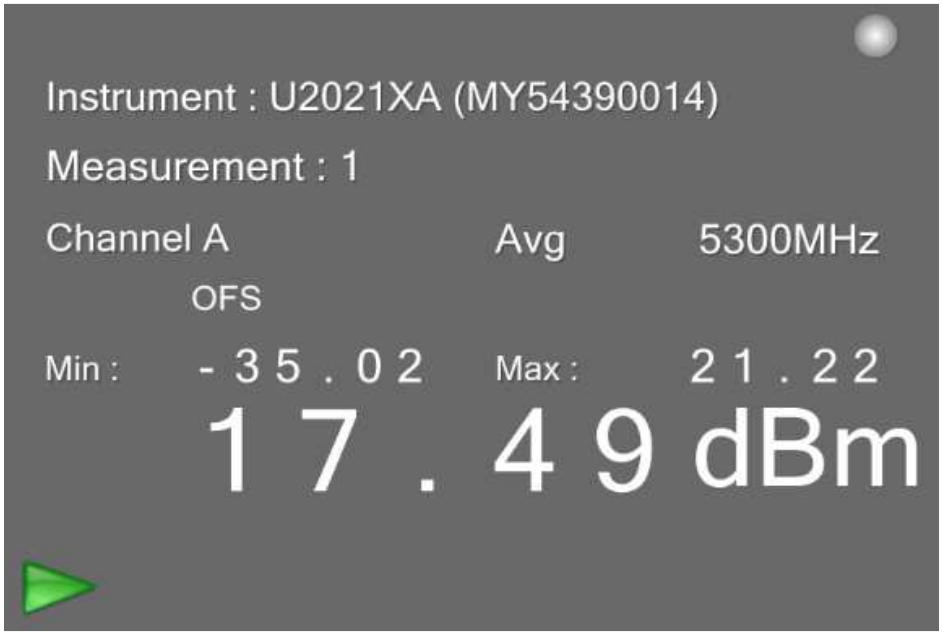

Figure 86: Maximum Conducted Output power measured at ch.1

5.3.3.5.6 10MHz Modulation BW-High channel_5335 MHz

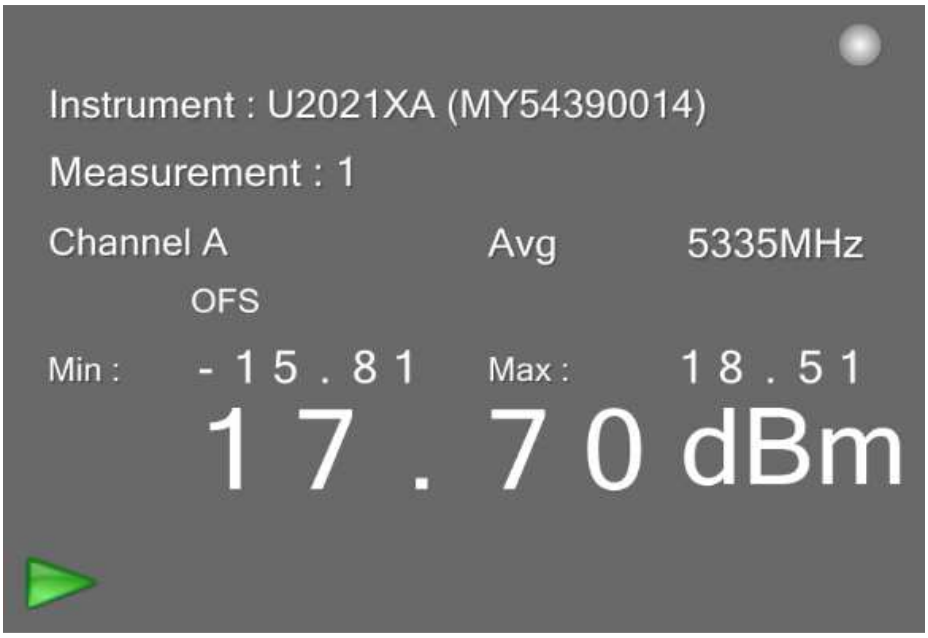

Figure 87: Maximum Conducted Output power measured at ch.0

Figure 88: Maximum Conducted Output power measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.3.6 RESULT (SUPPORTING GRAPHS / DATA) FOR 17DBI ANTENNA CONDITION

5.3.3.6.1 40MHZ MODULATION BW-LOW CHANNEL_5280 MHZ

Figure 89: Maximum Conducted Output power measured at ch.0

Figure 90: Maximum Conducted Output power measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.3.6.2 40MHz Modulation BW-Mid channel_5300 MHz

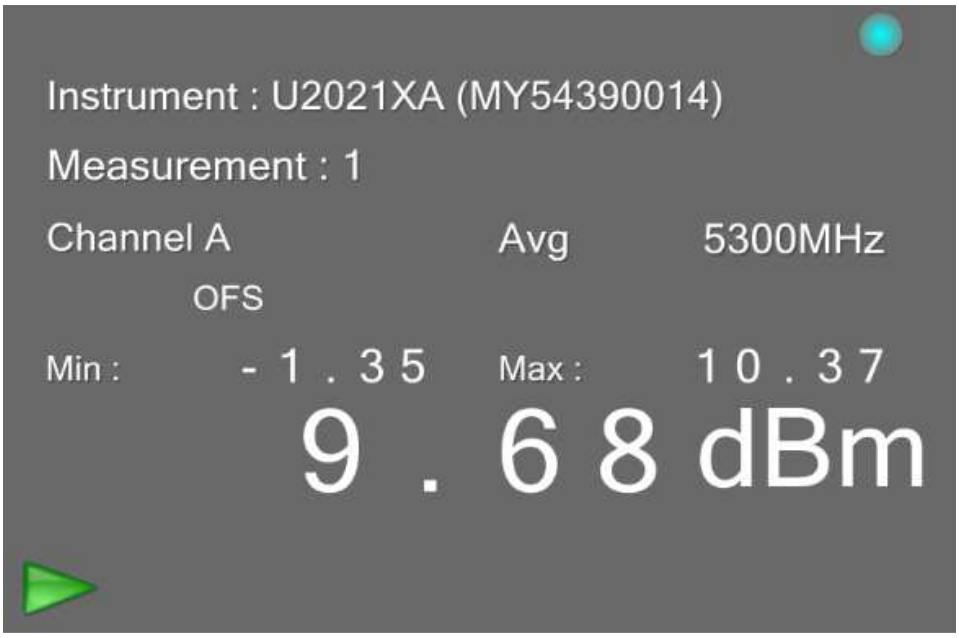

Figure 91: Maximum Conducted Output power measured at ch.0

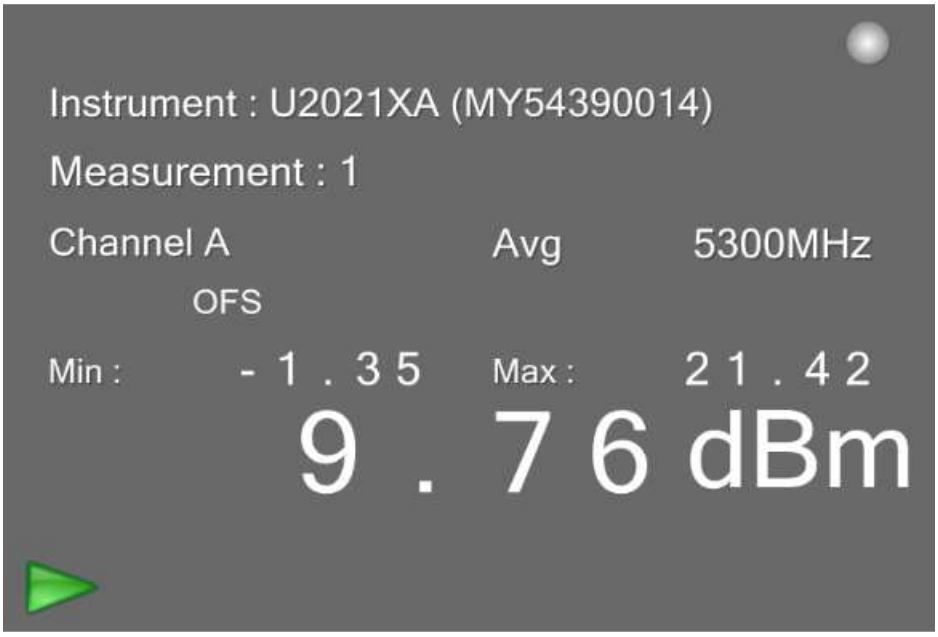

Figure 92: Maximum Conducted Output power measured at ch.1

5.3.3.6.3 40MHz Modulation BW-High channel_5320MHz

Figure 93: Maximum Conducted Output power measured at ch.0

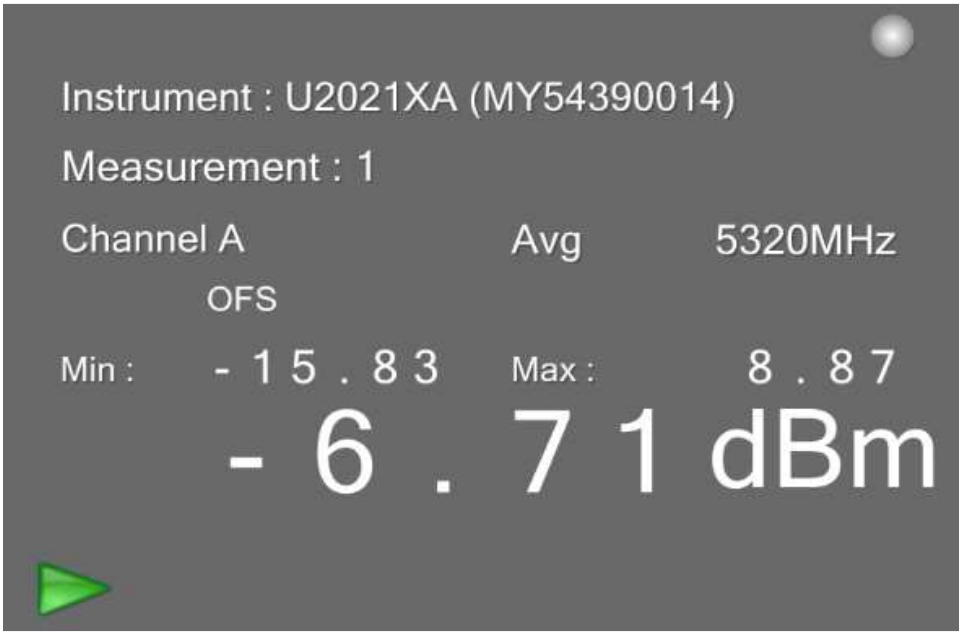

Figure 94: Maximum Conducted Output power measured at ch.1

5.3.3.6.4 10MHz Modulation BW-Low channel_5265MHz

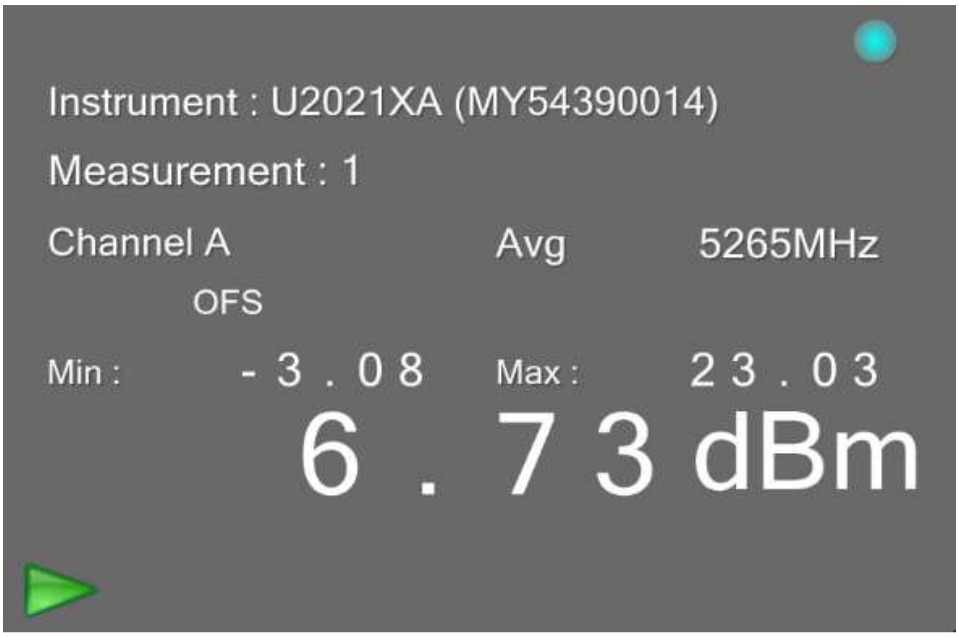

Figure 95: Maximum Conducted Output power measured at ch.0

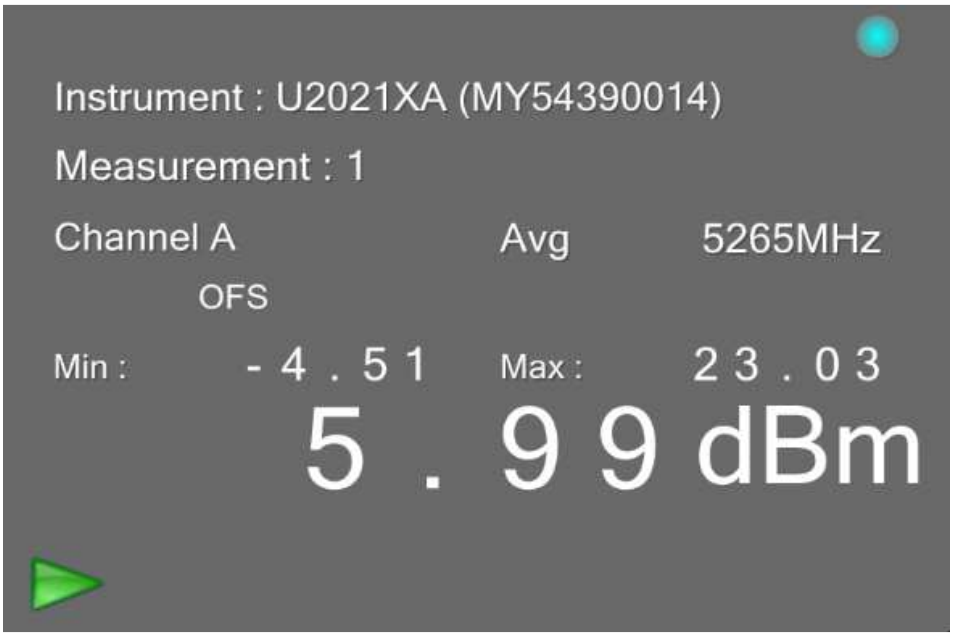

Figure 96: Maximum Conducted Output power measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.3.6.5 10MHz Modulation BW-Mid channel_5300MHz

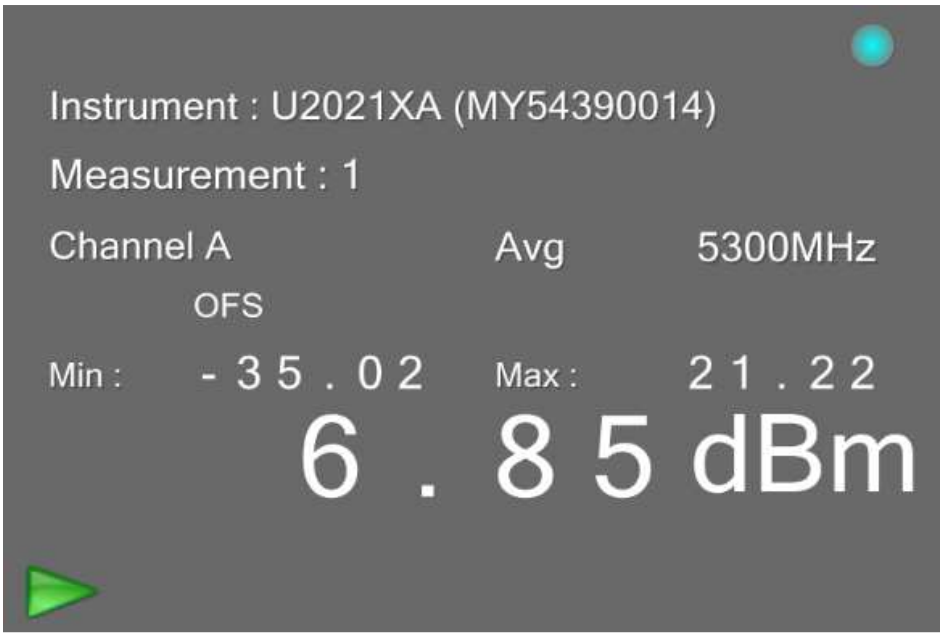

Figure 97: Maximum Conducted Output power measured at ch.0

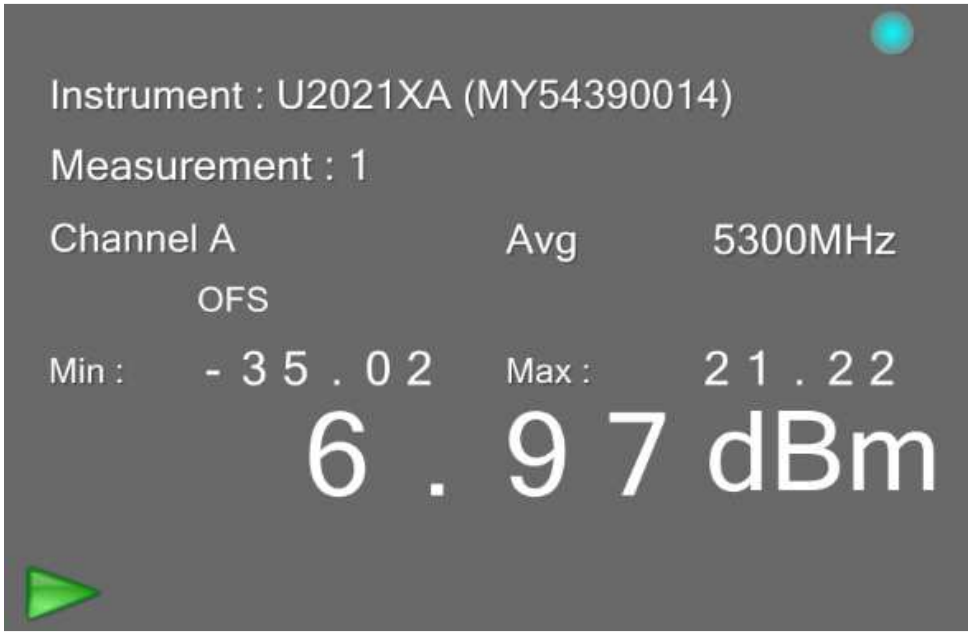

Figure 98: Maximum Conducted Output power measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.3.6.6 10MHz Modulation BW-High channel_5335MHz

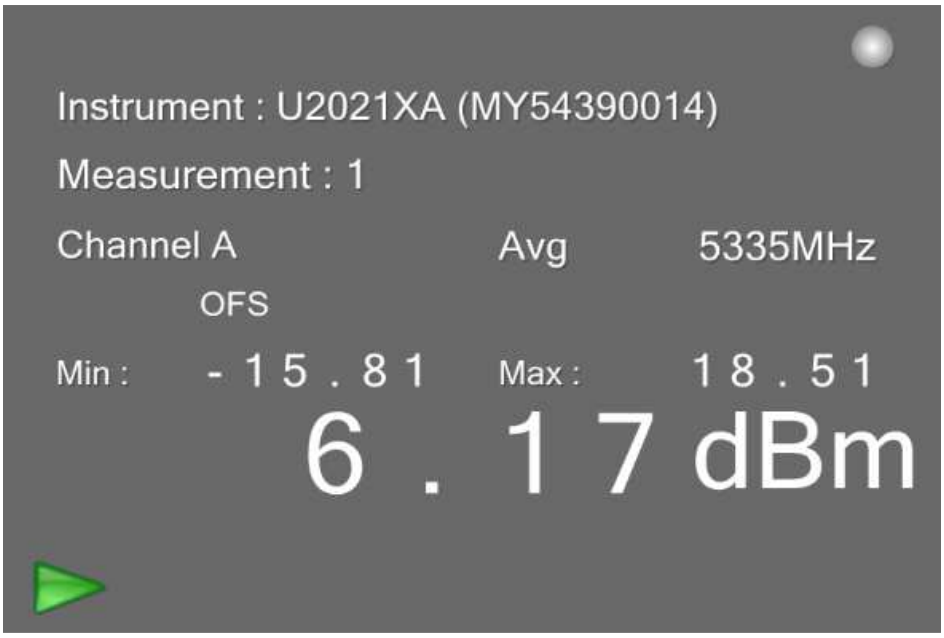

Figure 99: Maximum Conducted Output power measured at ch.0

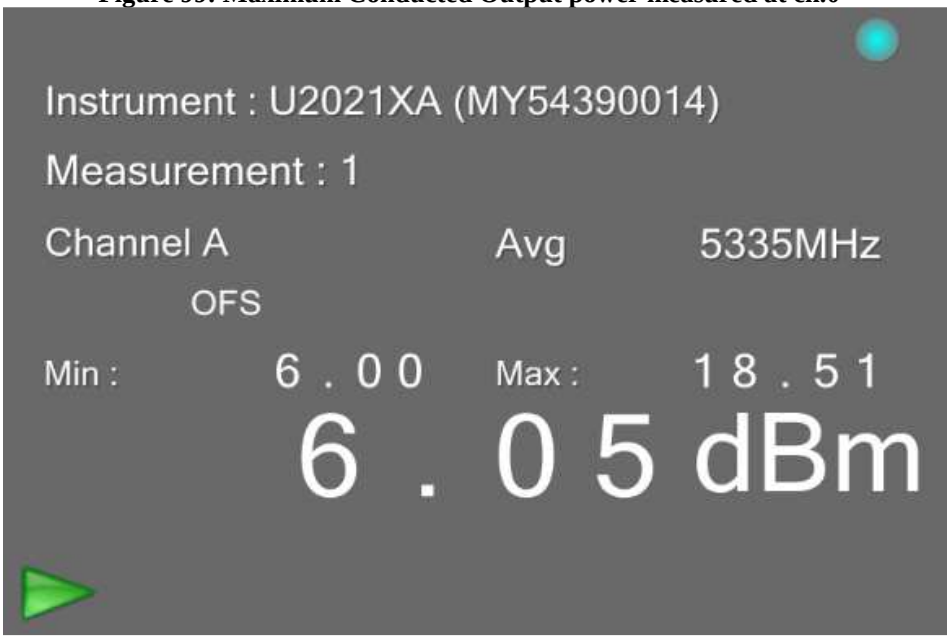

Figure 100: Maximum Conducted Output power measured at ch.1

5.3.3.7 RESULT (SUPPORTING GRAPHS / DATA) FOR 24DBI DISH CONDITION

5.3.3.7.1 40MHZ MODULATION BW-LOW CHANNEL_5280 MHZ

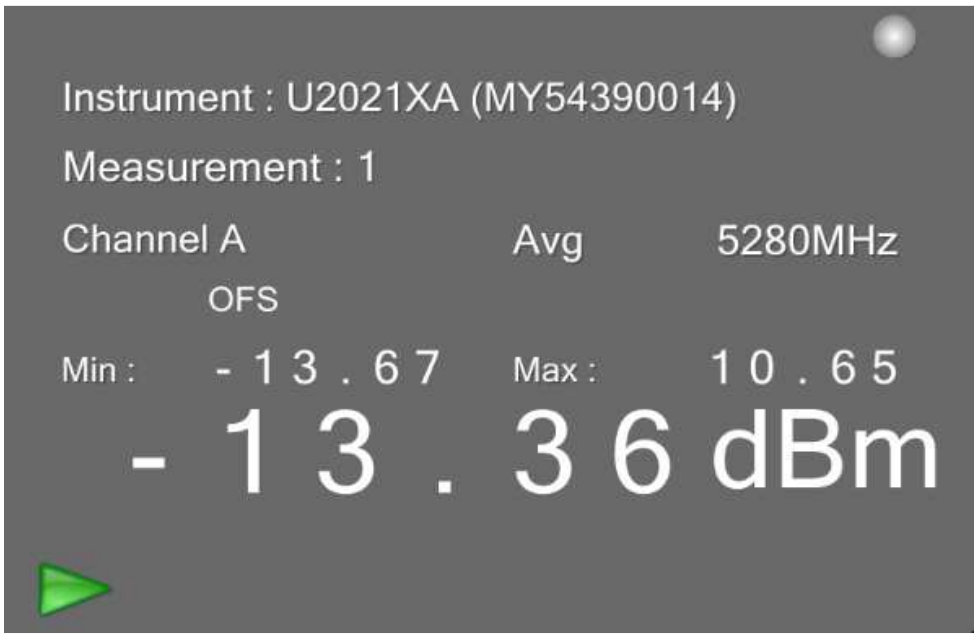

Figure 101: Maximum Conducted Output power measured at ch.0

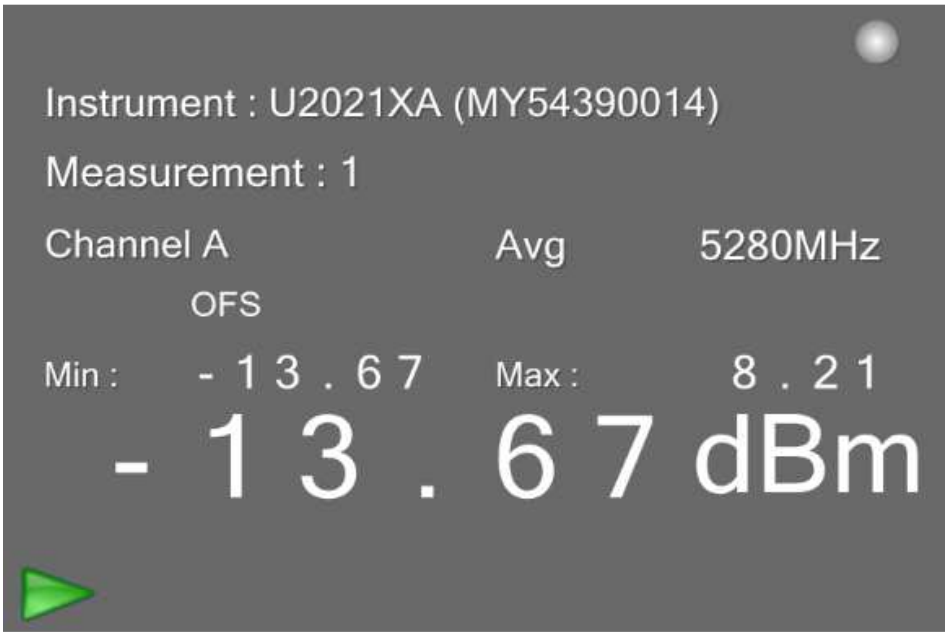

Figure 102: Maximum Conducted Output power measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.3.7.2 40MHz Modulation BW-Mid channel_5300 MHz

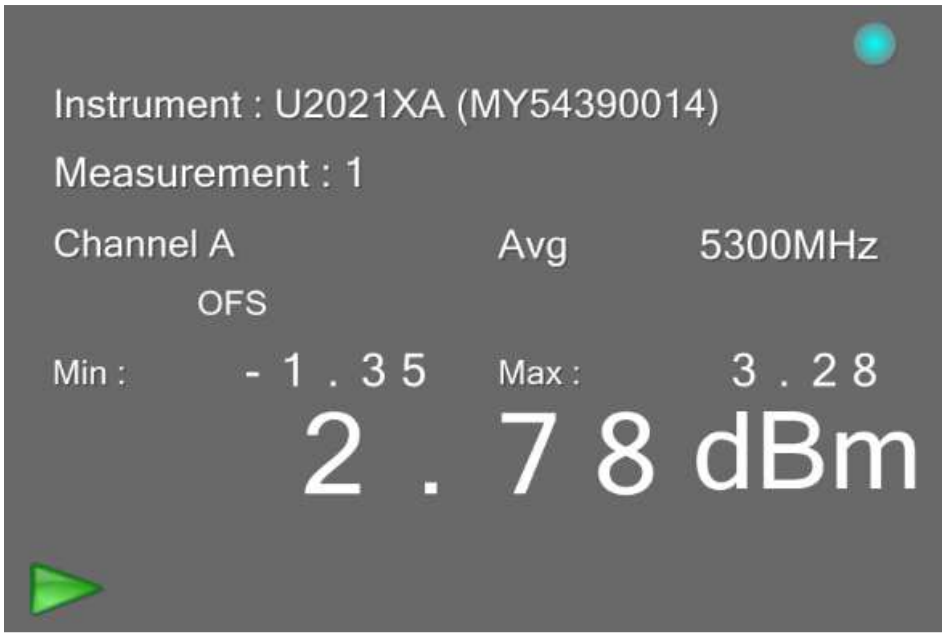

Figure 103: Maximum Conducted Output power measured at ch.0

Figure 104: Maximum Conducted Output power measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.3.7.3 40MHz Modulation BW-High channel_5320MHz

Figure 105: Maximum Conducted Output power measured at ch.0

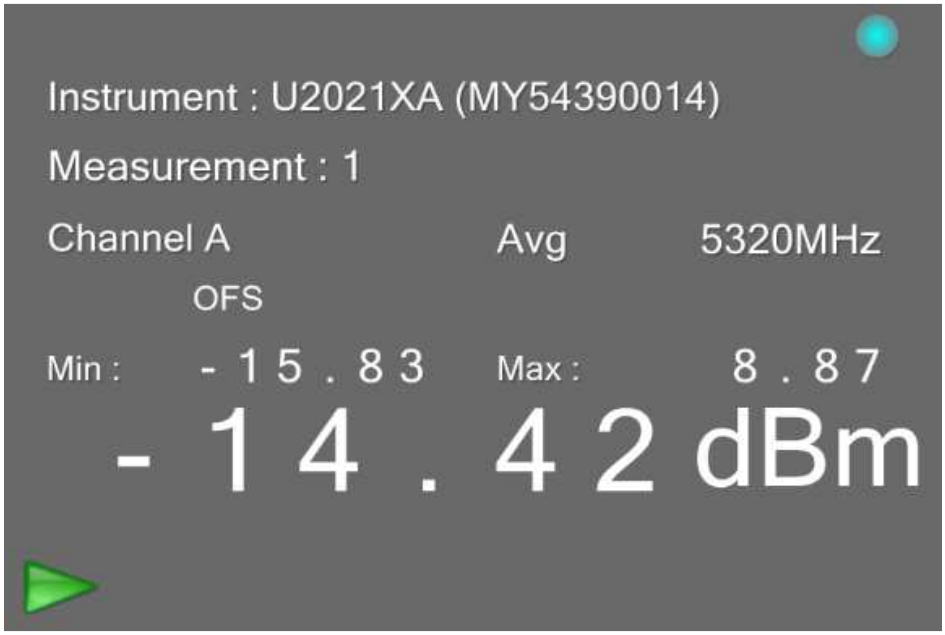

Figure 106: Maximum Conducted Output power measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.3.7.4 10MHz Modulation BW-Low channel_5265 MHz

Figure 107: Maximum Conducted Output power measured at ch.0

Figure 108: Maximum Conducted Output power measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.3.7.5 10MHz Modulation BW-Mid channel_5300 MHz

Figure 109: Maximum Conducted Output power measured at ch.0

Figure 110: Maximum Conducted Output power measured at ch.1

5.3.3.7.6 10MHz Modulation BW-High channel_5335 MHz

Figure 111: Maximum Conducted Output power measured at ch.0

Figure 112: Maximum Conducted Output power measured at ch.1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.3.8 RESULT

Maximum Conducted Output power for all channels in both 40MHz &10MHz Modulation Bandwidths is within the specified limit. Refer below table for consolidated data.

5.3.3.8.1 BASIC CONDITION

Modulation Bandwidth (MHz)	Antenna path	Channel Frequency (MHz)	Recorded value (dBm)
40	Ch. 0	5280	8.26
40	Ch. 0	5300	20.42
40	Ch. 0	5320	7.84
40	Ch. 1	5280	8.14
40	Ch. 1	5300	2.012
40	Ch. 1	5320	8.81
10	Ch. 0	5265	13.33
10	Ch. 0	5300	17.93
10	Ch. 0	5335	17.70
10	Ch. 1	5265	17.12
10	Ch. 1	5300	17.49
10	Ch. 1	5335	17.43

Consolidated values across channels and Final Power

Modulation Bandwidth (MHz)	Antenna path	Channel Frequency (MHz)	Consolidated Power (dBm)	Limit (dBm)	Result
40	Ch. 0& Ch. 1	5280	11.21	24	PASS
40	Ch. 0 & Ch. 1	5300	20.48	24	PASS
40	Ch. 0 & Ch. 1	5320	11.36	24	PASS
10	Ch. 0 & Ch. 1	5265	18.64	21	PASS
10	Ch. 0 & Ch. 1	5300	20.72	21	PASS
10	Ch. 0 & Ch. 1	5335	20.58	21	PASS

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.3.8.2 17DBI ANTENNA CONDITION

Modulation Bandwidth (MHz)	Antenna path	Channel Frequency (MHz)	Recorded value (dBm)
40	Ch. 0	5280	-4.71
40	Ch. 0	5300	9.68
40	Ch. 0	5320	-6.84
40	Ch. 1	5280	-5.10
40	Ch. 1	5300	9.76
40	Ch. 1	5320	-6.71
10	Ch. 0	5265	6.73
10	Ch. 0	5300	6.85
10	Ch. 0	5335	6.17
10	Ch. 1	5265	5.99
10	Ch. 1	5300	6.97
10	Ch. 1	5335	6.05

Consolidated values across channels and Final Power

Modulation Bandwidth (MHz)	Antenna path	Channel Frequency (MHz)	Consolidated Power (dBm)	Limit (dBm)	Result
40	Ch. 0& Ch. 1	5280	-1.89	13	PASS
40	Ch. 0 & Ch. 1	5300	12.73	13	PASS
40	Ch. 0 & Ch. 1	5320	-3.76	13	PASS
10	Ch. 0 & Ch. 1	5265	9.39	10	PASS
10	Ch. 0 & Ch. 1	5300	9.92	10	PASS
10	Ch. 0 & Ch. 1	5335	9.12	10	PASS

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.3.8.3 24DBI DISH CONDITION

Modulation Bandwidth (MHz)	Antenna path	Channel Frequency (MHz)	Recorded value (dBm)
40	Ch. 0	5280	-13.36
40	Ch. 0	5300	2.78
40	Ch. 0	5320	-15.08
40	Ch. 1	5280	-13.67
40	Ch. 1	5300	2.51
40	Ch. 1	5320	-14.42
10	Ch. 0	5265	-0.56
10	Ch. 0	5300	-0.07
10	Ch. 0	5335	0.00
10	Ch. 1	5265	-3.14
10	Ch. 1	5300	-0.26
10	Ch. 1	5335	-3.06

Consolidated values across channels and Final Power

Modulation Bandwidth (MHz)	Antenna path	Channel Frequency (MHz)	Consolidated Power (dBm)	Limit (dBm)	Result
40	Ch. 0& Ch. 1	5280	-10.50	6	PASS
40	Ch. 0 & Ch. 1	5300	5.66	6	PASS
40	Ch. 0 & Ch. 1	5320	-11.73	6	PASS
10	Ch. 0 & Ch. 1	5265	1.35	3	PASS
10	Ch. 0 & Ch. 1	5300	2.85	3	PASS
10	Ch. 0 & Ch. 1	5335	1.74	3	PASS

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4 PEAK POWER SPECTRAL DENSITY

5.3.4.1 TEST SPECIFICATION

Test Standard	47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C RSS-Gen, Issue 4, Nov 2014
Test Procedure	ANSI C63.10-2013
Frequency Range	5250MHz to 5350MHz
Resolution Bandwidth	1MHz
Video Bandwidth	3MHz
Sweep Time	100msec
Attenuation	Auto
Test Mode	Conducted
Detector	Average
Input Voltage	120V AC
Input Frequency	60 Hz
Temperature	22.0°C
Humidity	56.0%
Tested By	Subhendu
Test Date	05th May to 12th May 2015

5.3.4.2 LIMITS

Test condition	Limit (dBm/MHz) – 2 chains	Limit (dBm/MHz) – 1 chain
Basic limit	11	8
17dBi External antenna limit	0*	-3*
24dBi dish	-7*	-10*

*: As per standard if antenna gain is more than 6dBi, then the limit should be reduced by the amount in dB that the gain of the antenna exceeds 6dBi

5.3.4.3 TEST SETUP

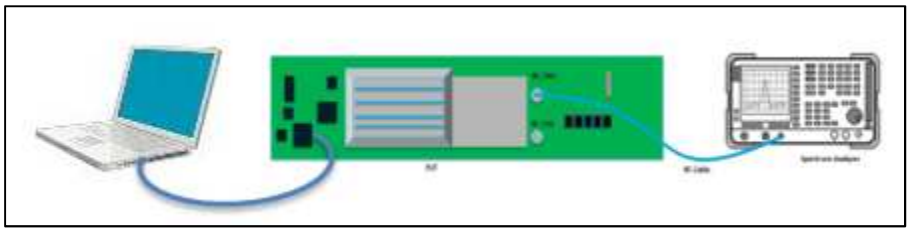

Figure 113: Typical test setup for Conducted Test setup

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.4 TEST PROCEDURE

The Conducted test was performed using the Spectrum analyzer. Measurements were done as per Sections F & E (2) (b) of **"789033 D01 General UNII Test Procedures Old Rules v01r04".** The RF output of the EUT was connected to the input port of Spectrum analyzer using an attenuator. Captured the data from spectrum analyzer and compared with the limits specified in the standard.

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.5 RESULT (SUPPORTING GRAPHS / DATA) FOR BASIC CONDITION

5.3.4.5.1 40MHZ MODULATION BW-LOW CHANNEL_5280MHZ

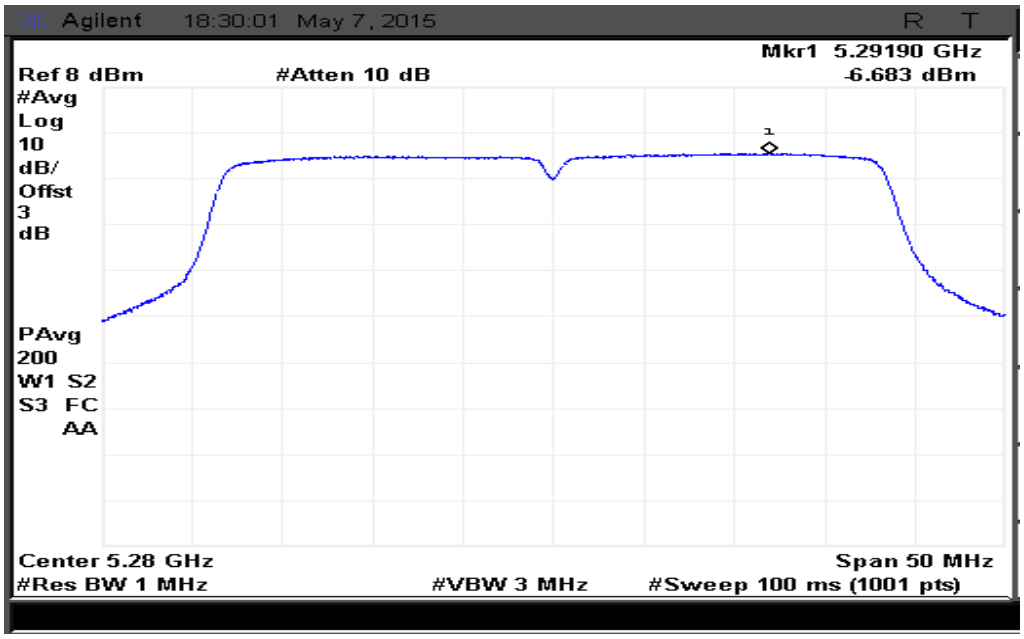

Figure 114: Power Spectral density measured at Ch. 0

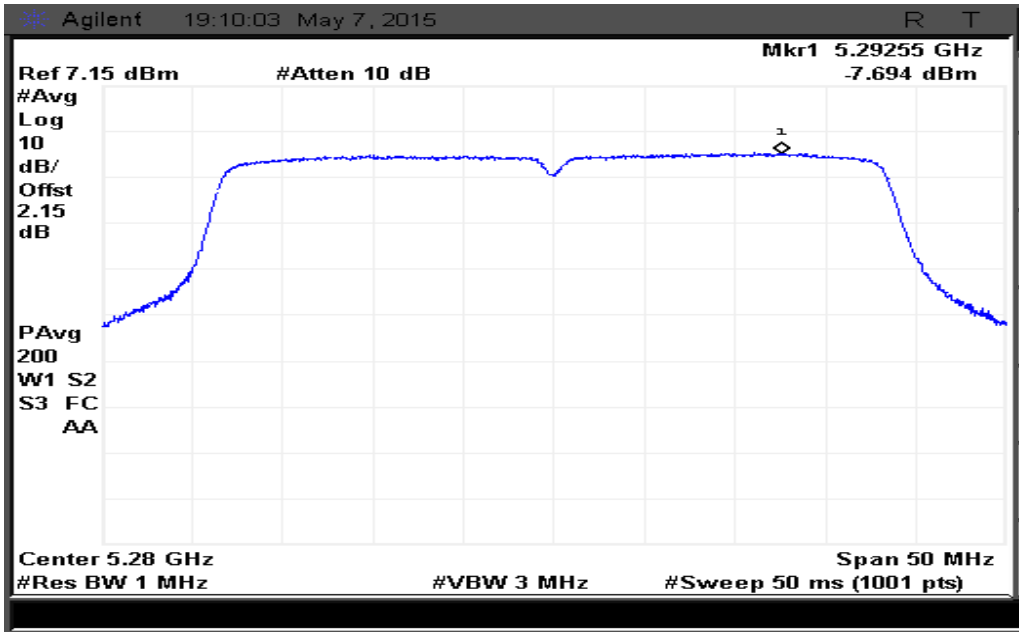

Figure 115: Power Spectral density measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.5.2 40MHz Modulation BW-Mid channel_5300MHz

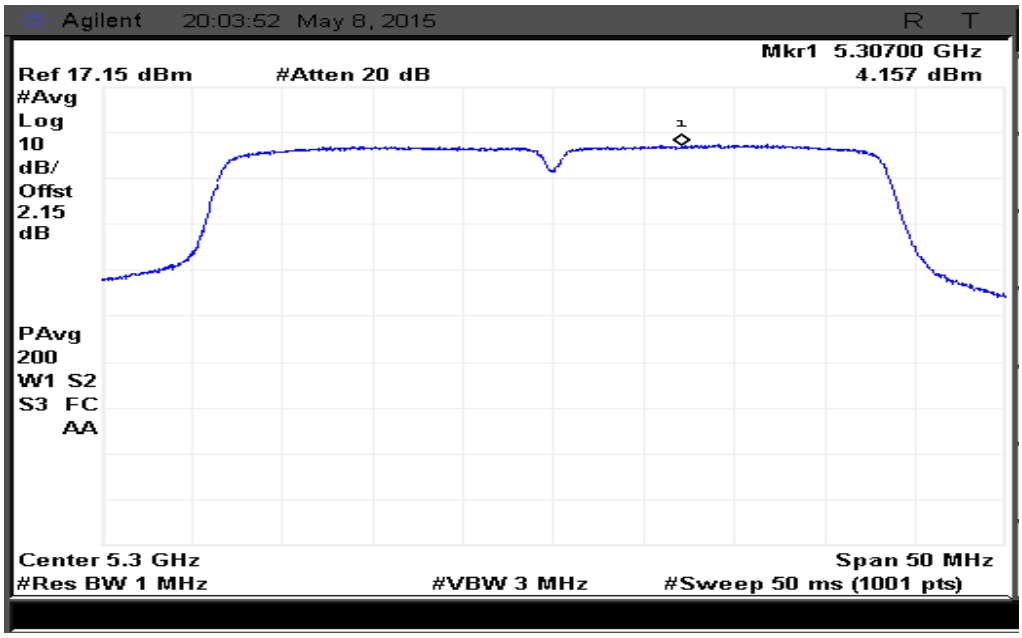

Figure 116: Power Spectral density measured at Ch. 0

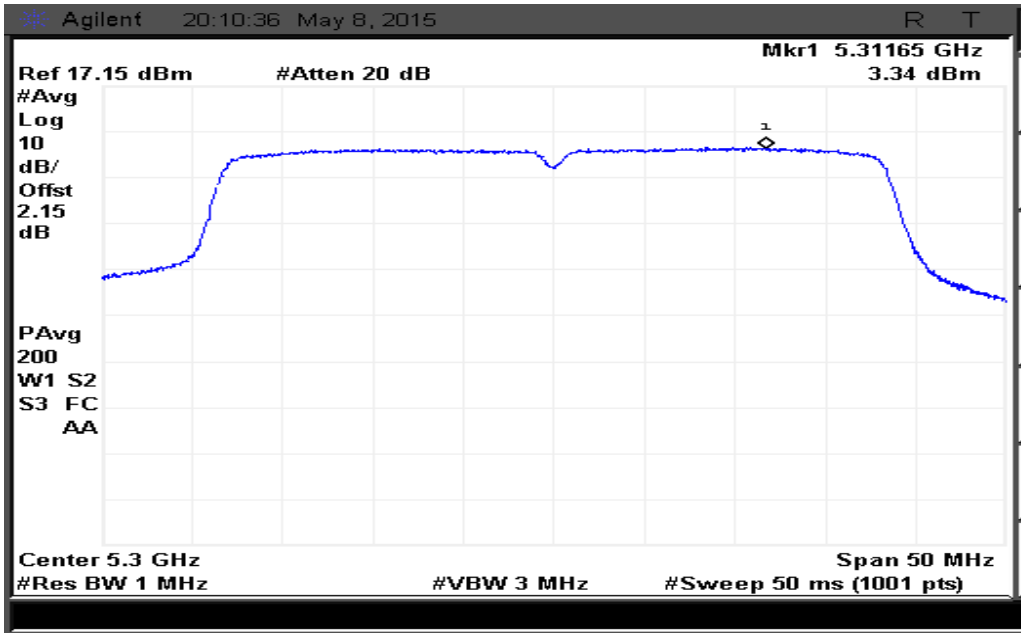

Figure 117: Power Spectral density measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.5.3 40MHz Modulation BW-High channel_5320MHz

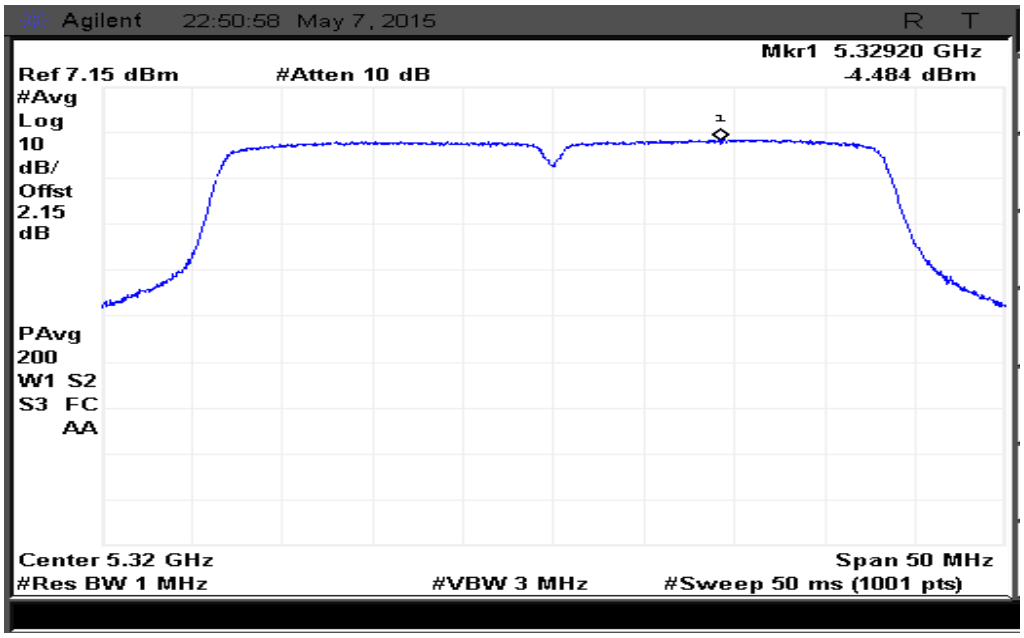

Figure 118: Power Spectral density measured at Ch. 0

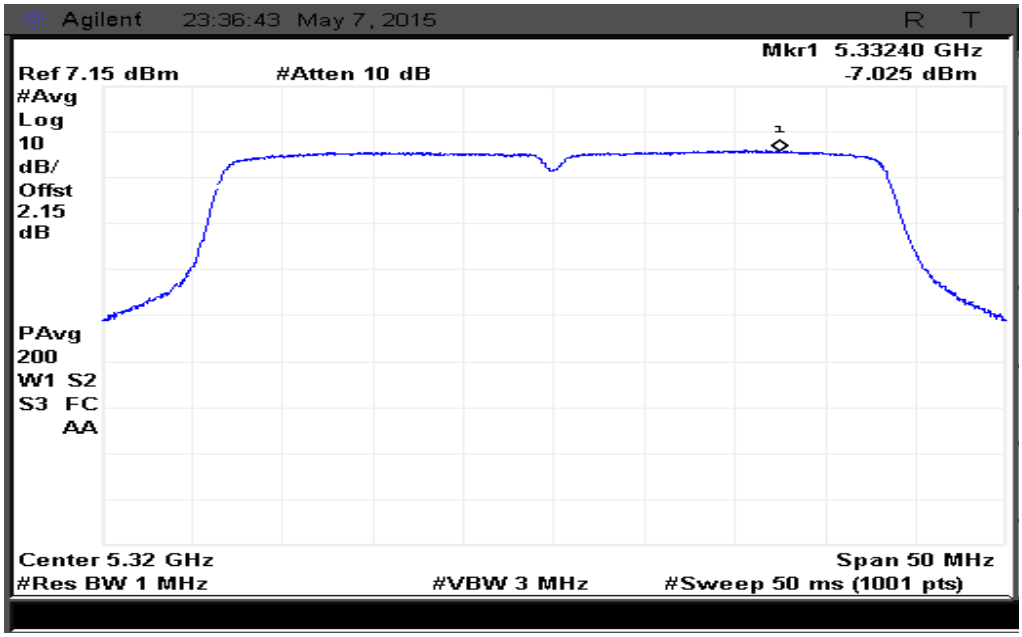

Figure 119: Power Spectral density measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.5.4 10MHz Modulation BW-Low channel_5265 MHz

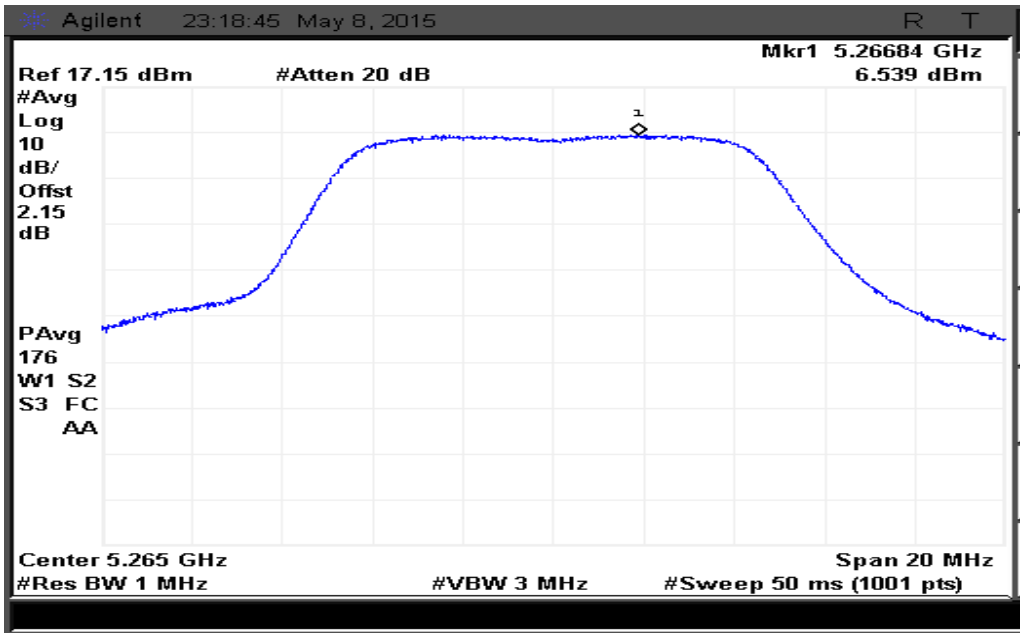

Figure 120: Power Spectral density measured at Ch. 0

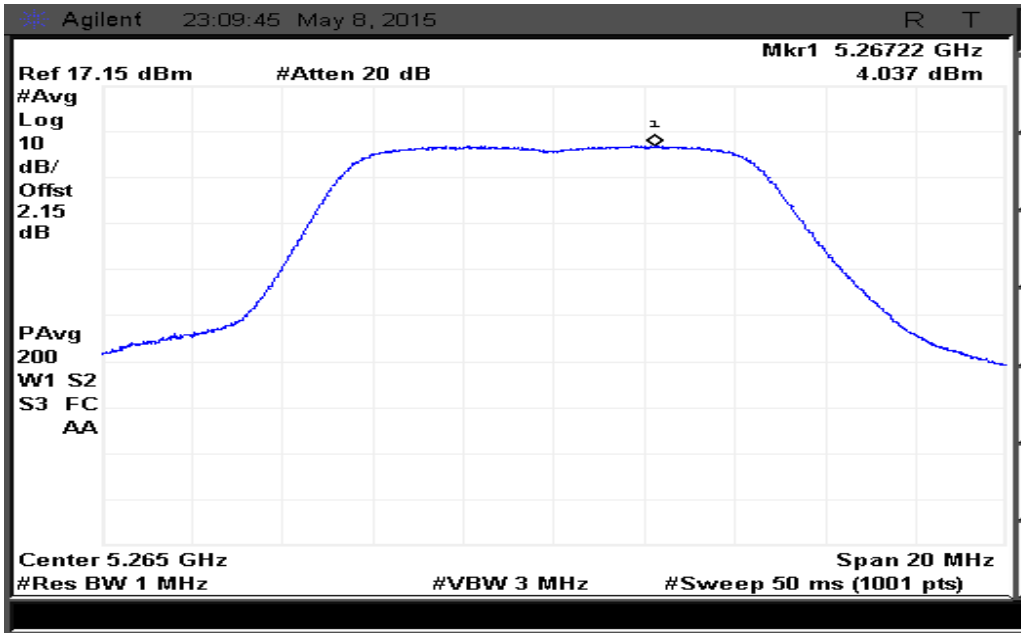

Figure 121: Power Spectral density measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.5.5 10MHz Modulation BW-Mid channel_5300 MHz

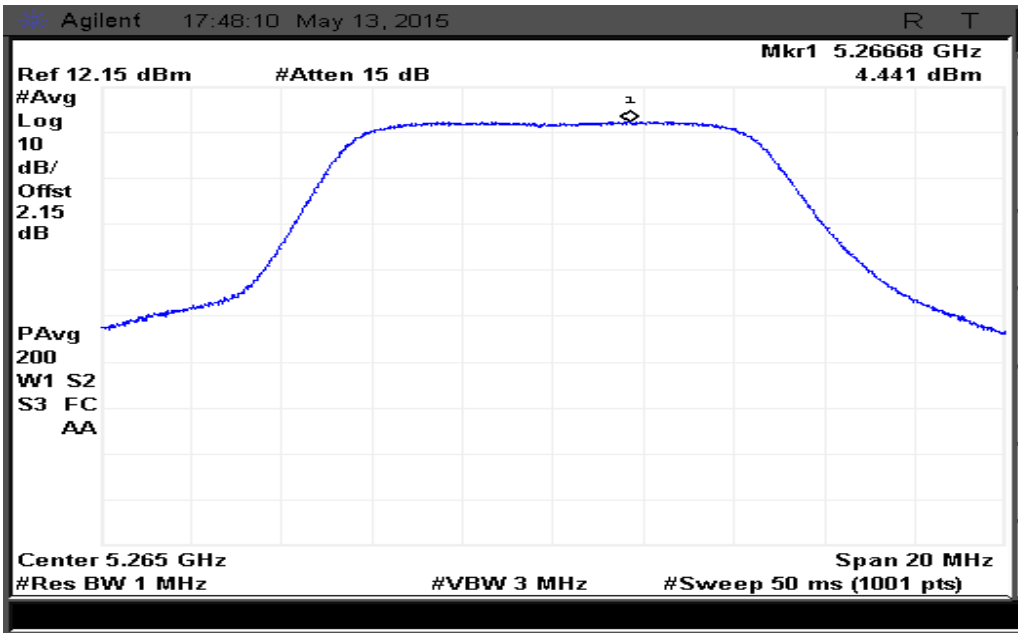

Figure 122: Power Spectral density measured at Ch. 0

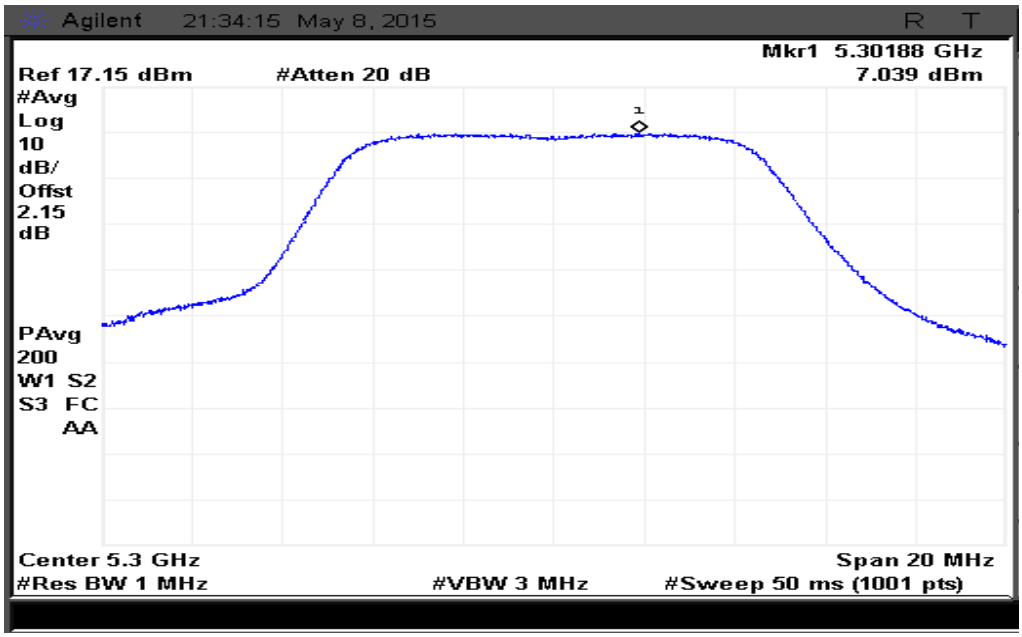

Figure 123: Power Spectral density measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.5.6 10MHz Modulation BW-High channel_5335MHz

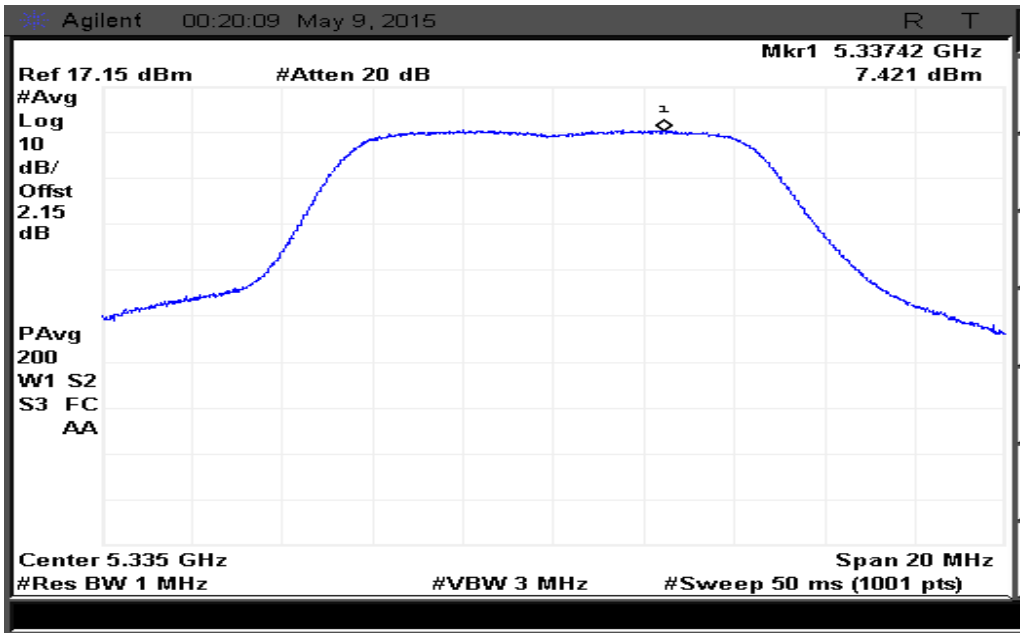

Figure 124: Power Spectral density measured at Ch. 0

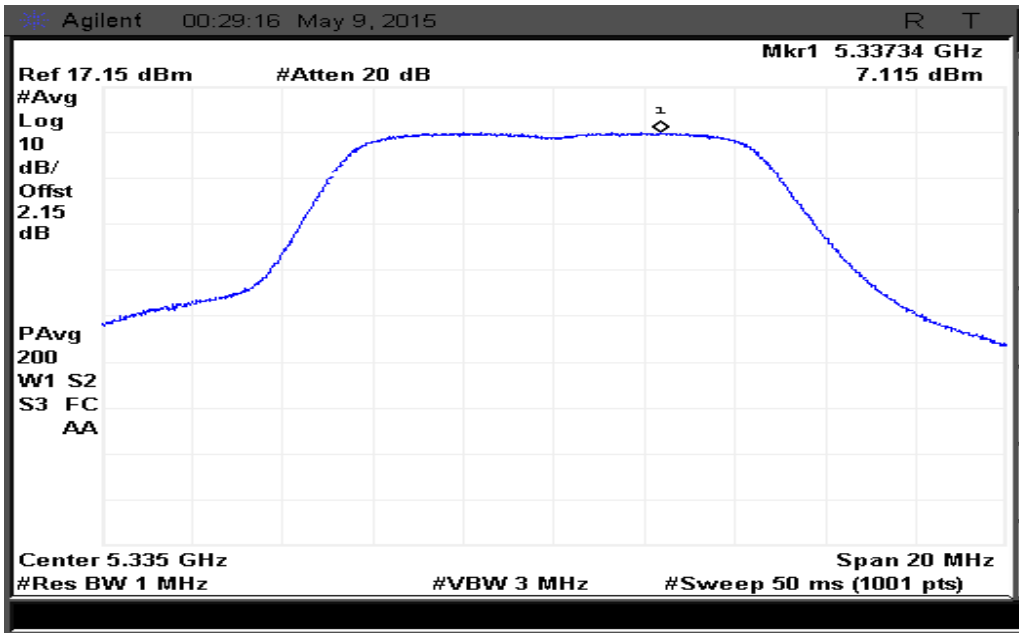

Figure 125: Power Spectral density measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.6 RESULT (SUPPORTING GRAPHS / DATA) FOR 17DBI ANTENNA CONDITION

5.3.4.6.1 40MHZ MODULATION BW-LOW CHANNEL_5280 MHZ

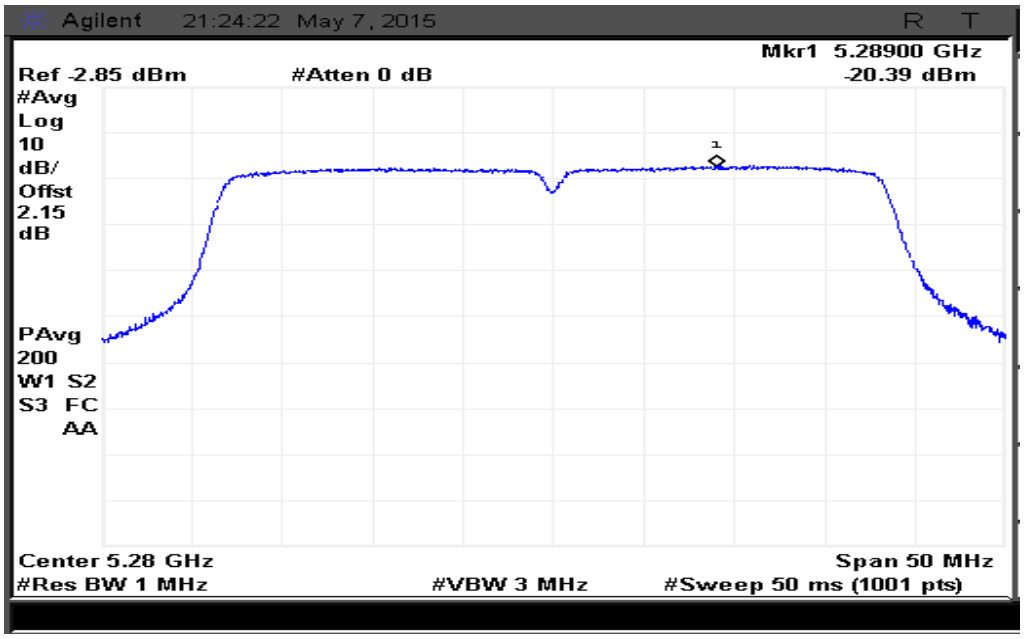

Figure 126: Power Spectral density measured at Ch. 0

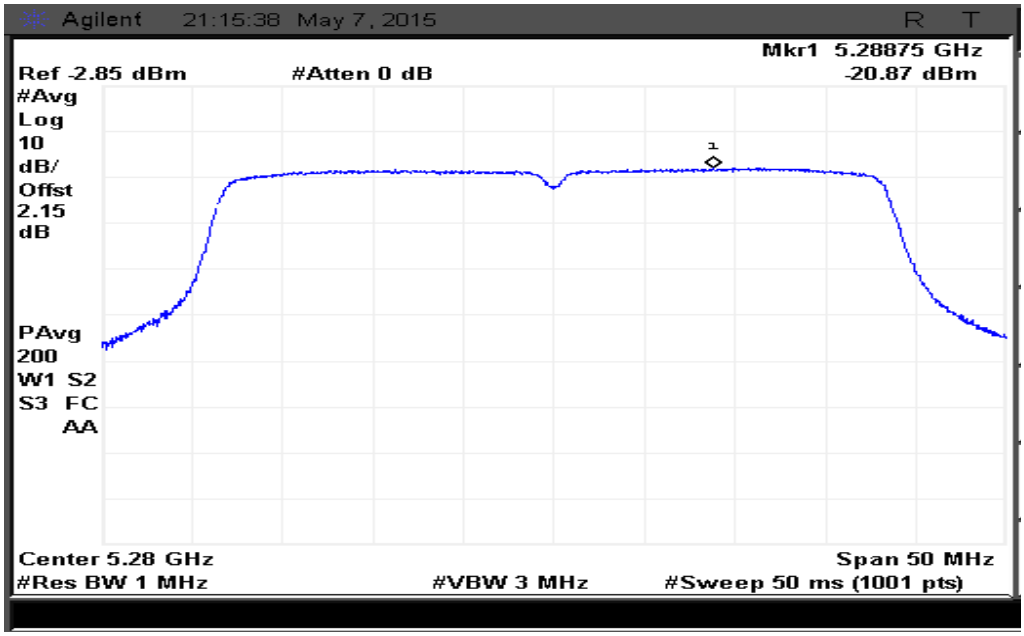

Figure 127: Power Spectral density measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.6.2 40MHz MODULATION BW-MID CHANNEL_5300 MHz

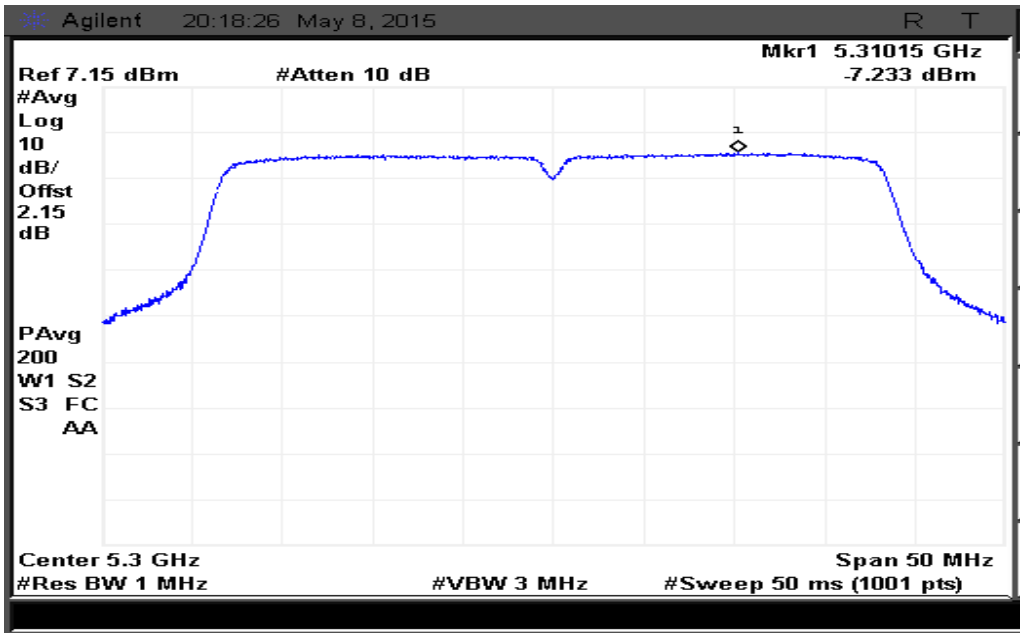

Figure 128: Power Spectral density measured at Ch. 0

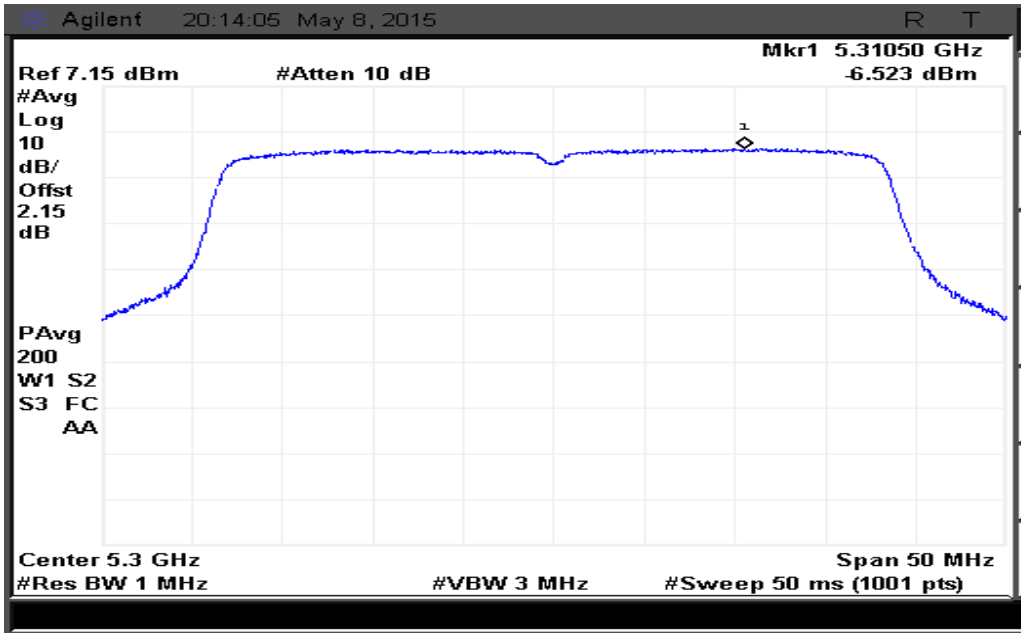

Figure 129: Power Spectral density measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.6.3 40MHz Modulation BW-High channel_5320MHz

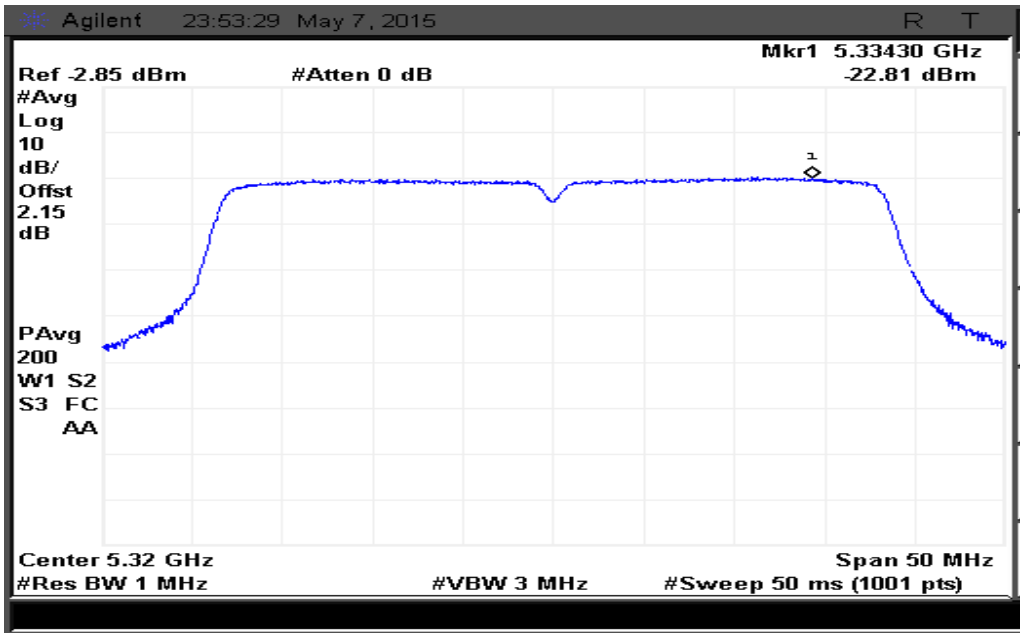

Figure 130: Power Spectral density measured at Ch. 0

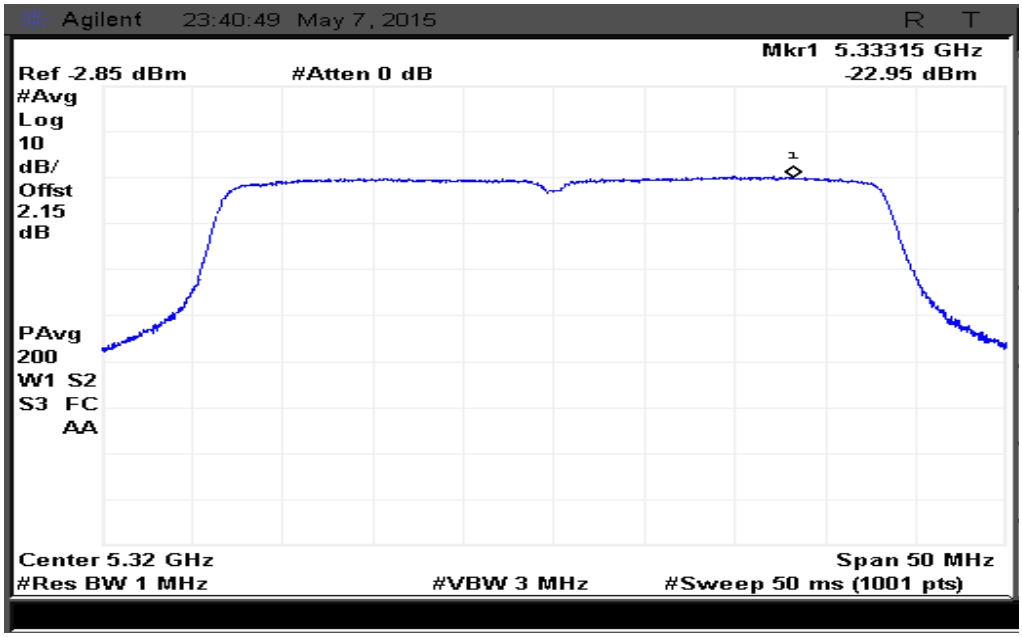

Figure 131: Power Spectral density measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.6.4 10MHz Modulation BW-Low hannel_5265MHz

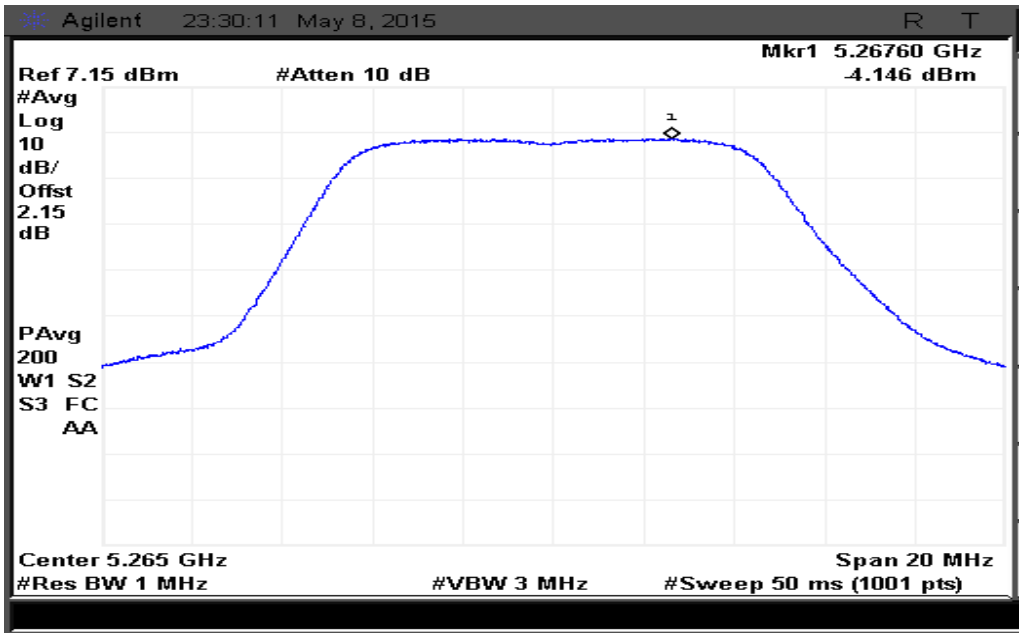

Figure 132: Power Spectral density measured at Ch. 0

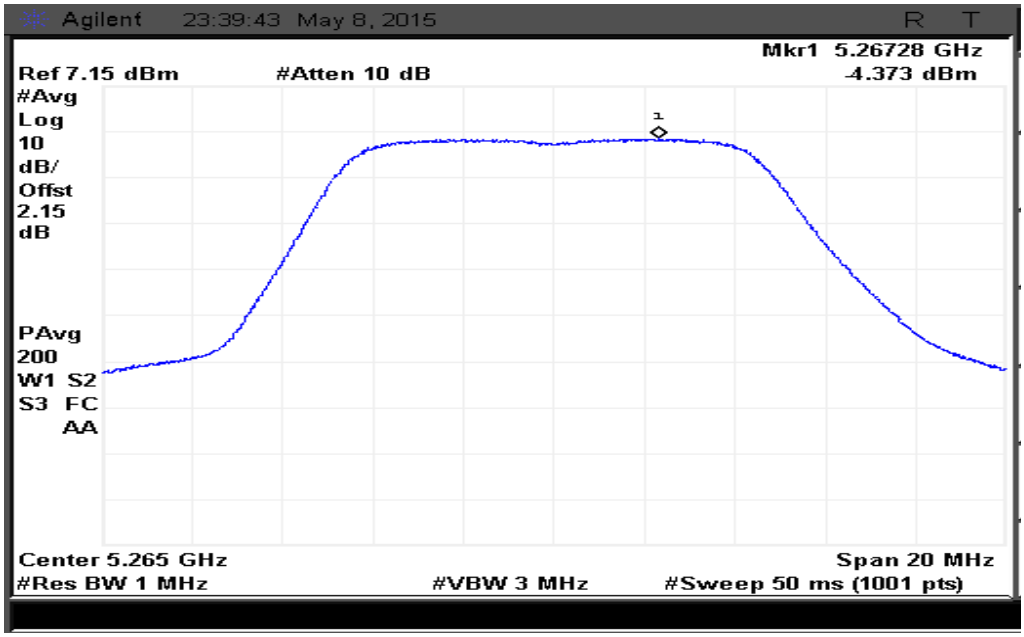

Figure 133: Power Spectral density measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.6.5 10MHz Modulation BW-Mid channel_5300MHz

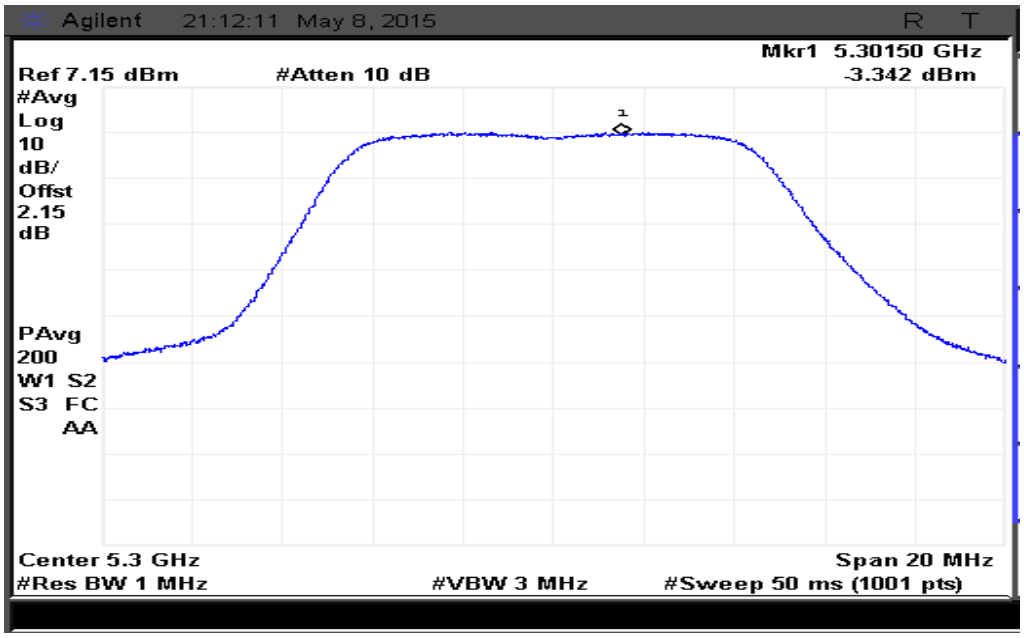

Figure 134: Power Spectral density measured at Ch. 0

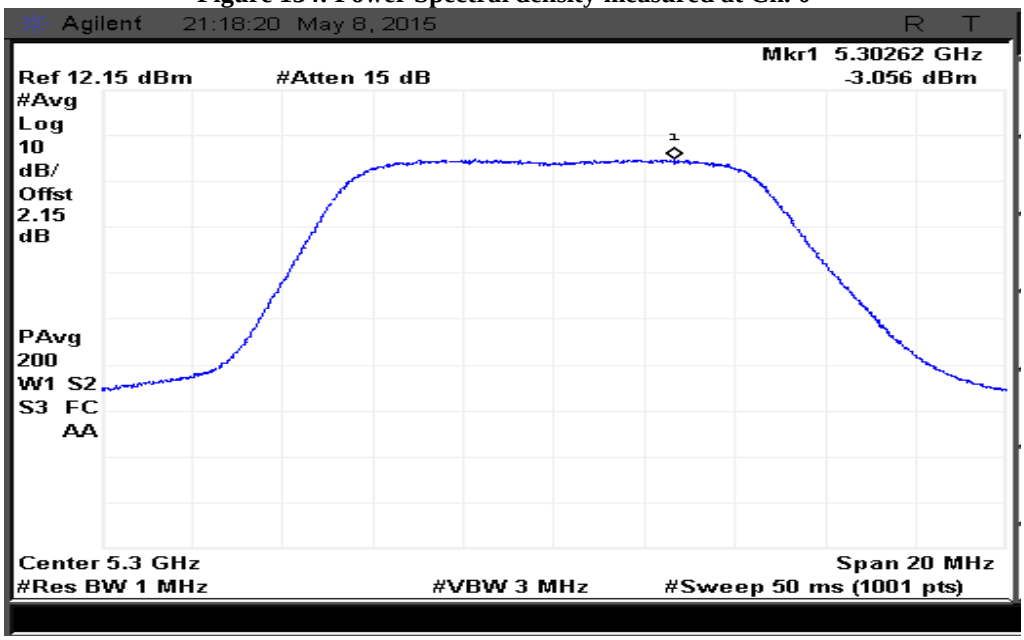

Figure 135: Power Spectral density measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.6.6 10MHz Modulation BW-High channel_5335MHz

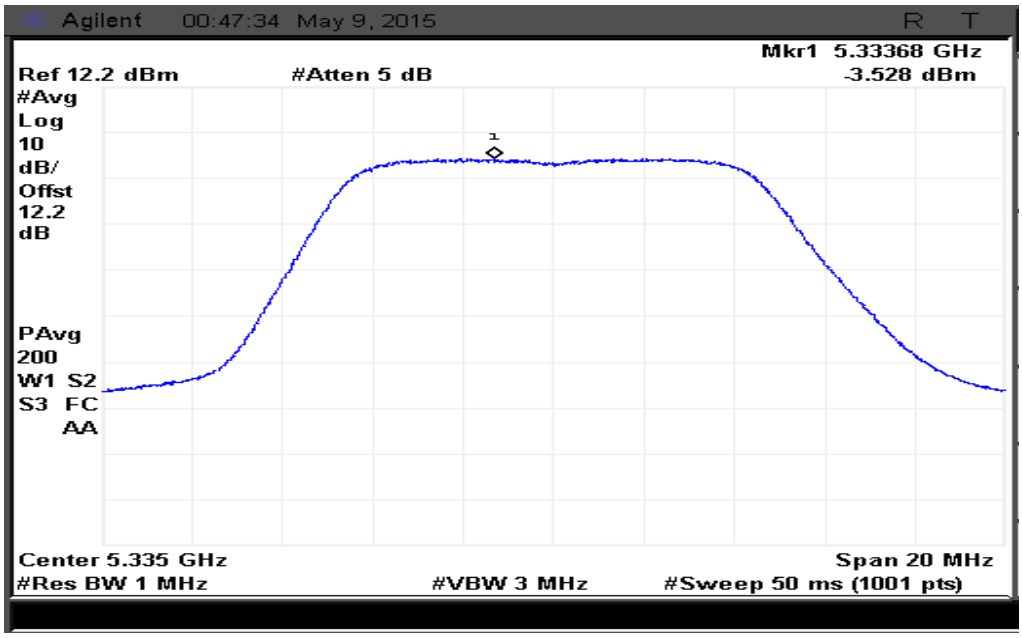

Figure 136: Power Spectral density measured at Ch. 0

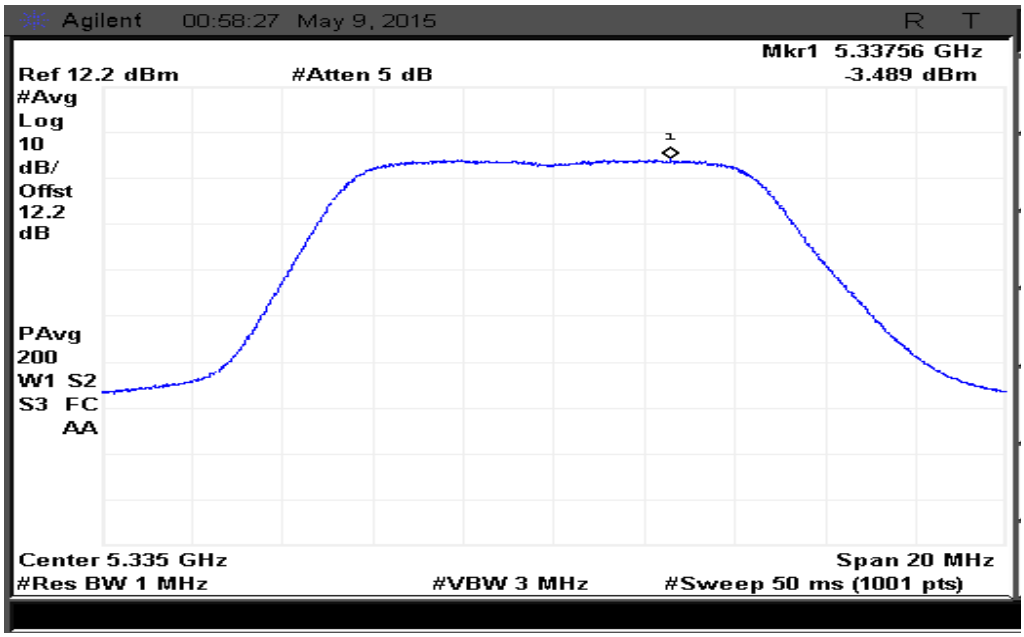

Figure 137: Power Spectral density measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.7 RESULT (SUPPORTING GRAPHS / DATA) FOR 24DBI DIDH CONDITION

5.3.4.7.1 40MHZ MODULATION BW-LOW CHANNEL_5280 MHZ

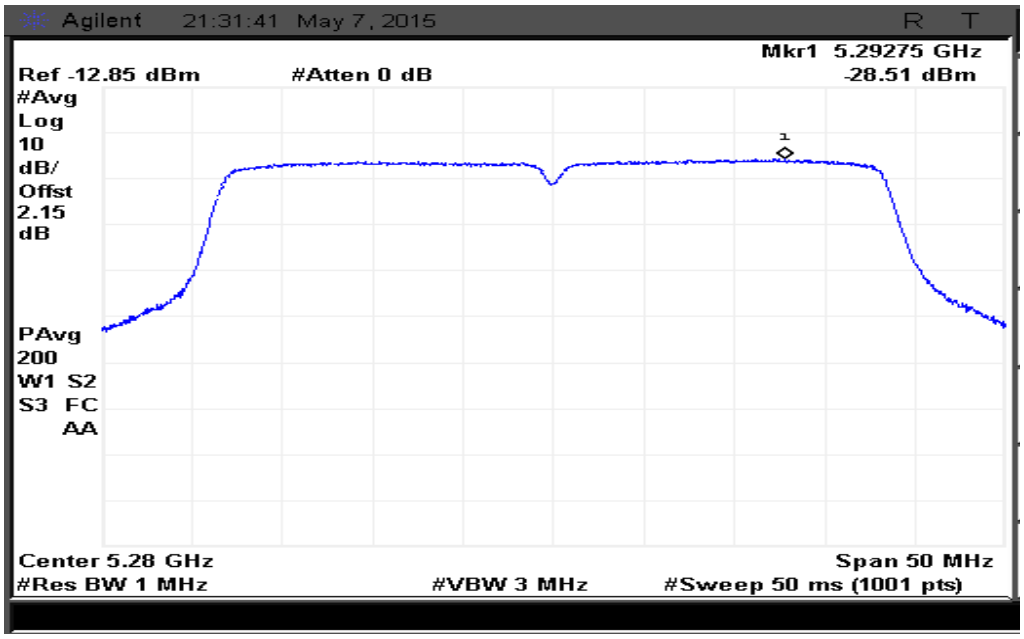

Figure 138: Power Spectral density measured at Ch. 0

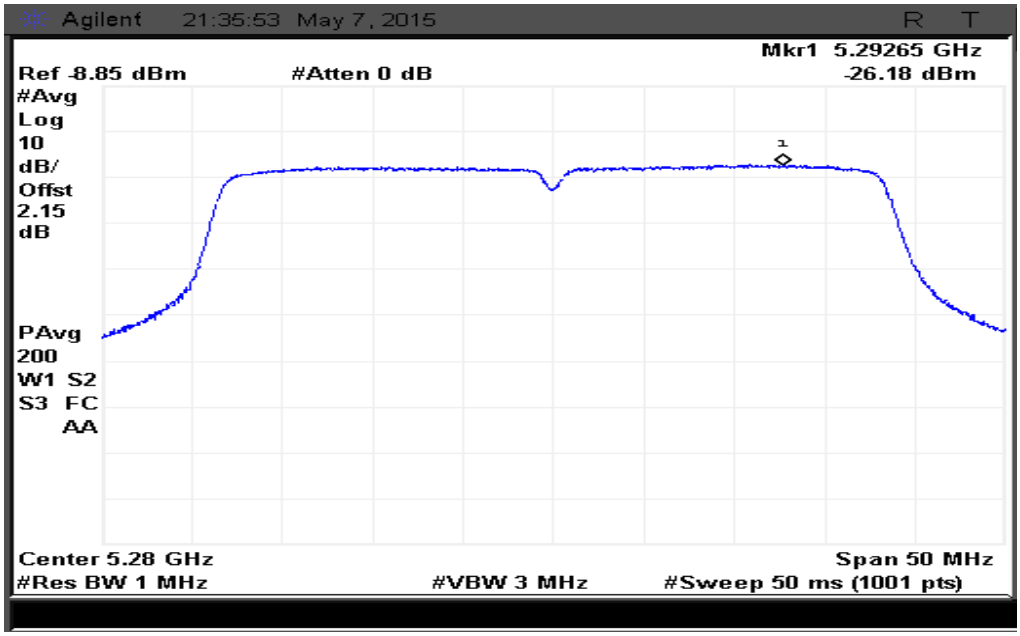

Figure 139: Power Spectral density measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.7.2 40MHz Modulation BW-Mid channel_5300 MHz

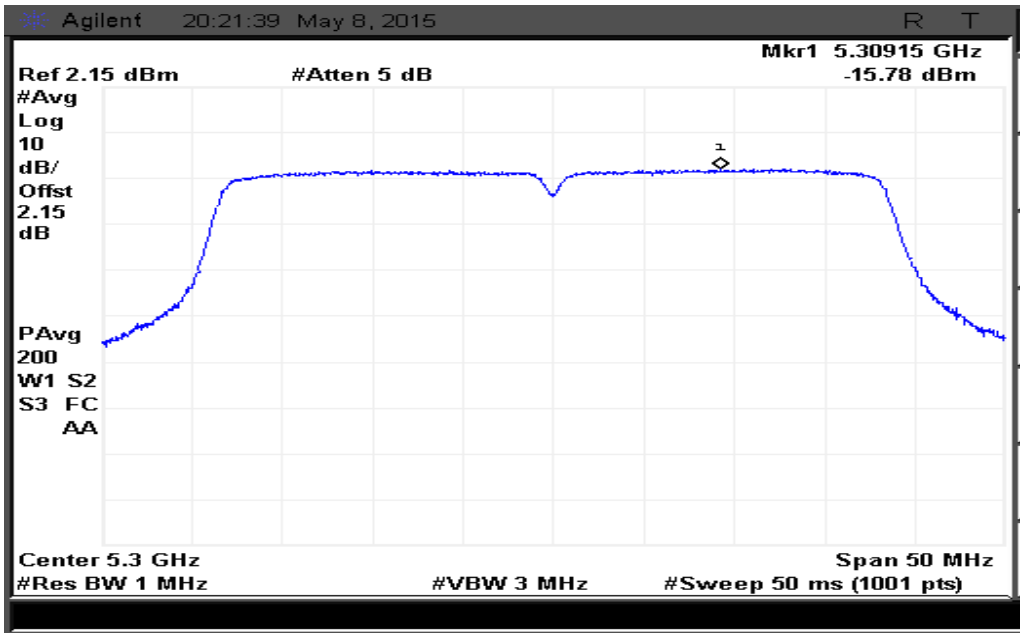

Figure 140: Power Spectral density measured at Ch. 0

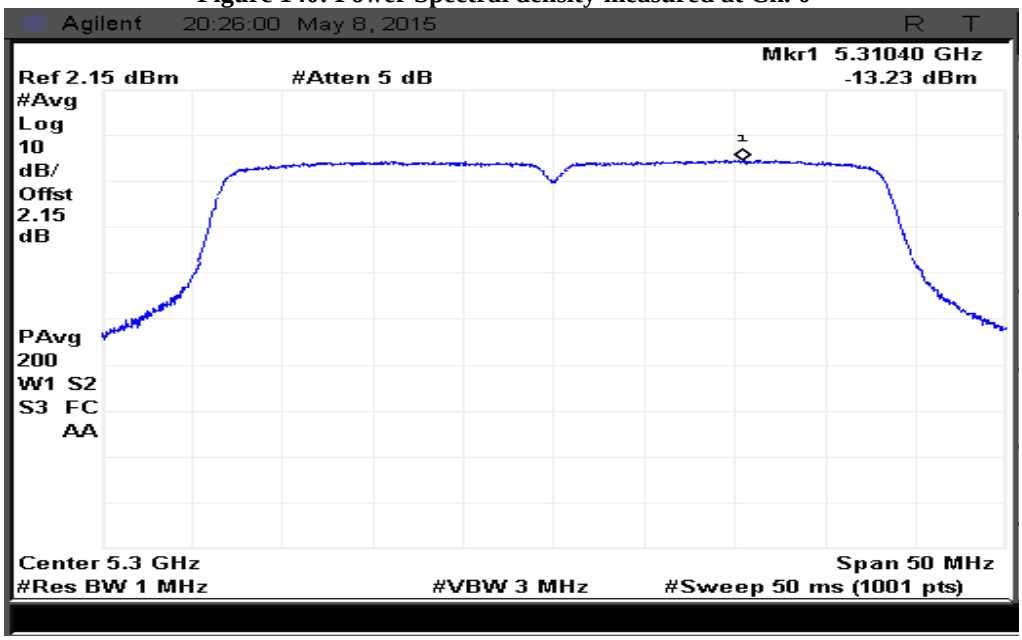

Figure 141: Power Spectral density measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.7.3 40MHz Modulation BW-High channel_5320MHz

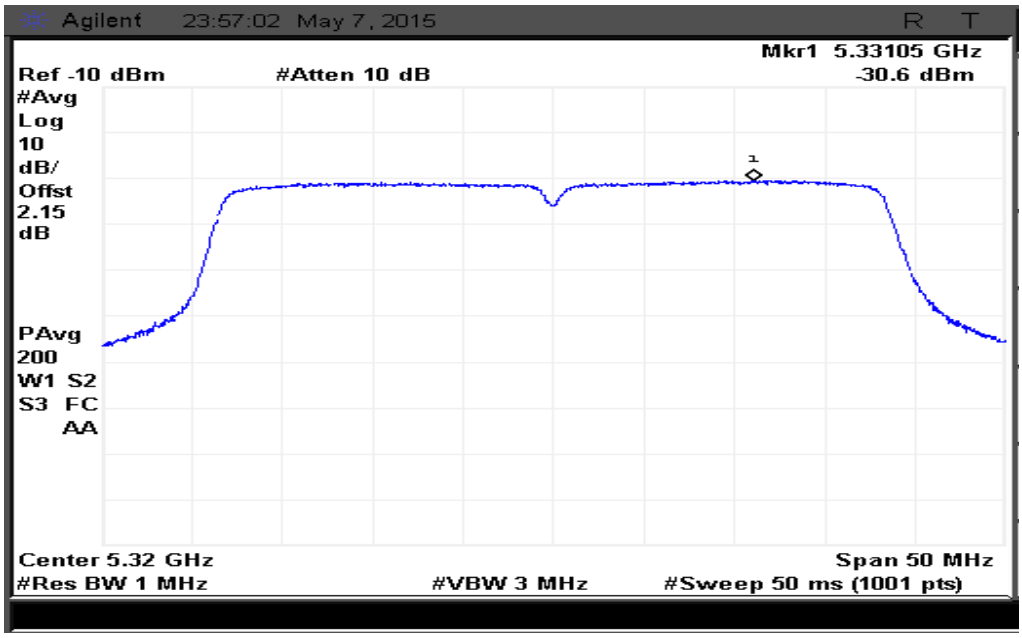

Figure 142: Power Spectral density measured at Ch. 0

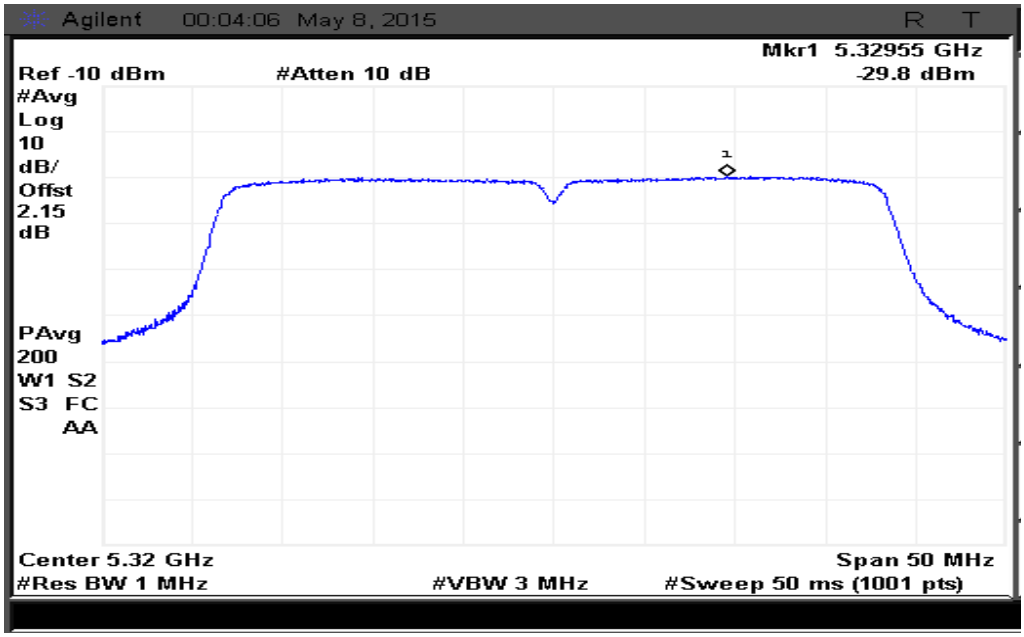

Figure 143: Power Spectral density measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.7.4 10MHz Modulation BW-Low channel_5265 MHz

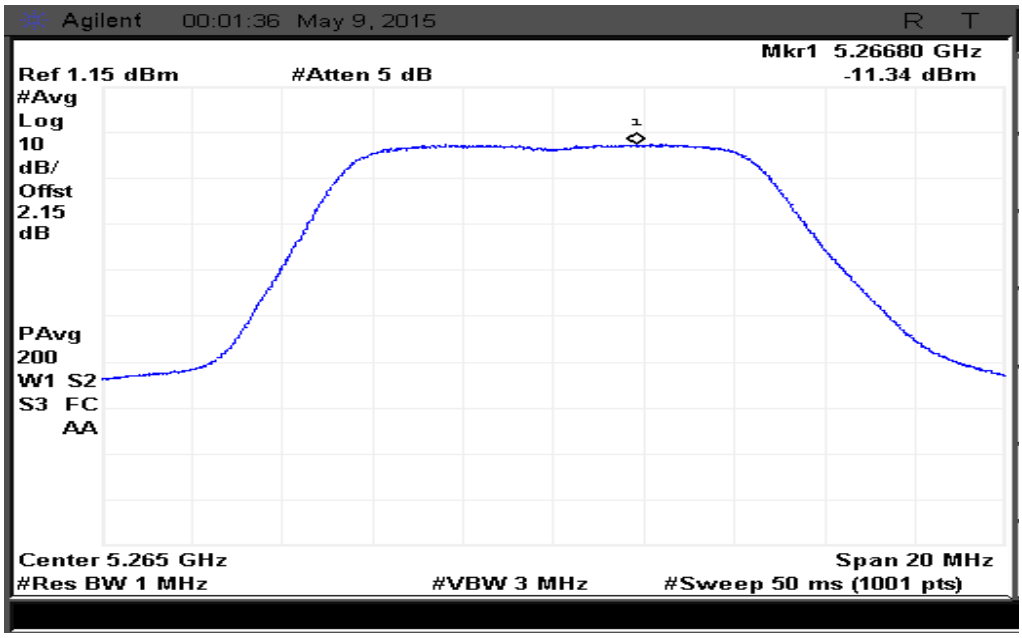

Figure 144: Power Spectral density measured at Ch. 0

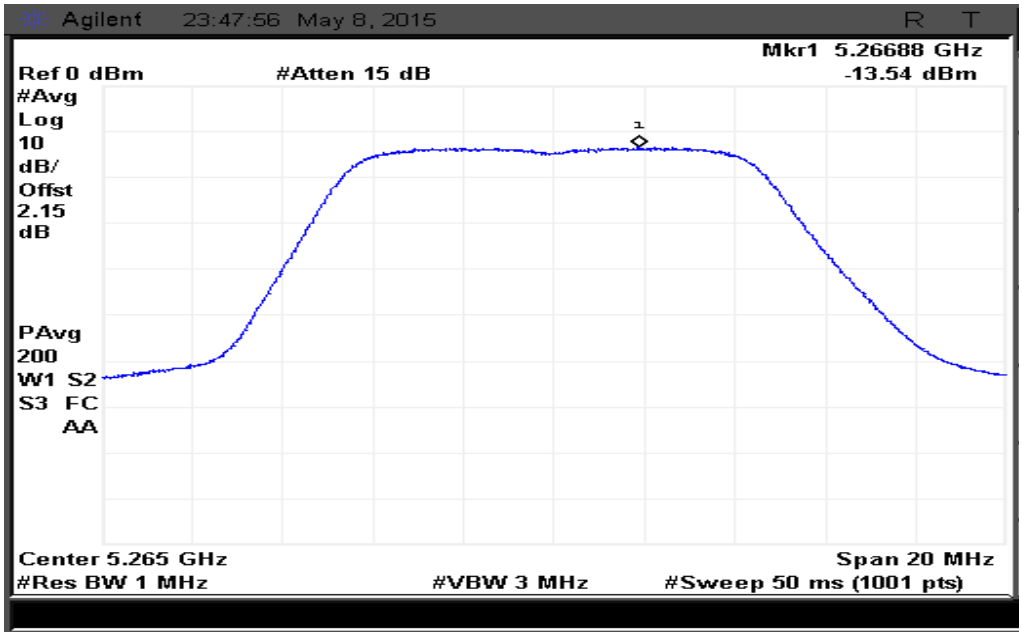

Figure 145: Power Spectral density measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.7.5 10MHz Modulation BW-Mid channel_5300 MHz

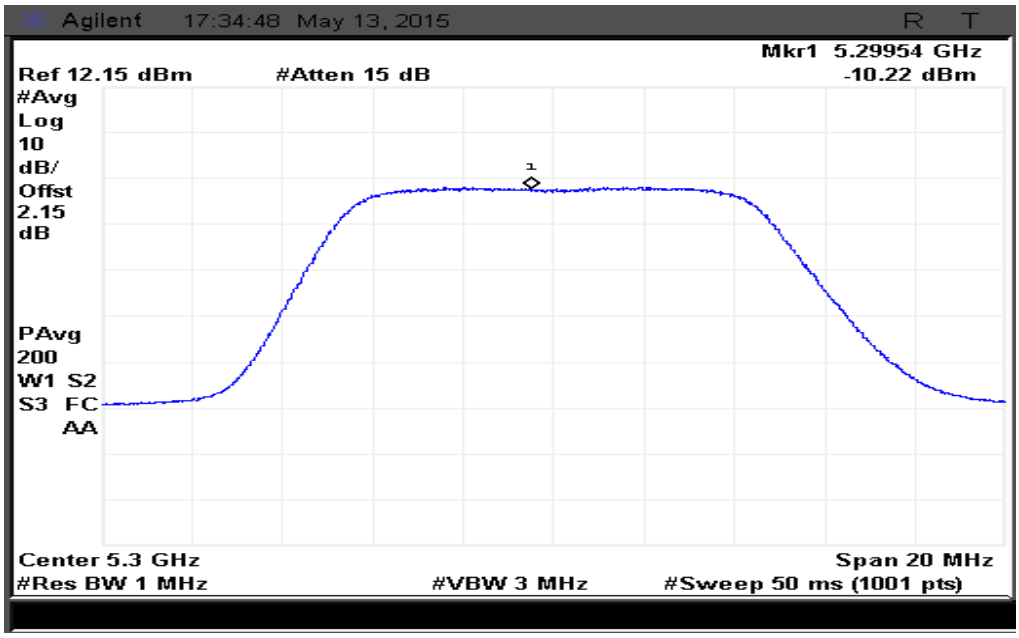

Figure 146: Power Spectral density measured at Ch. 0

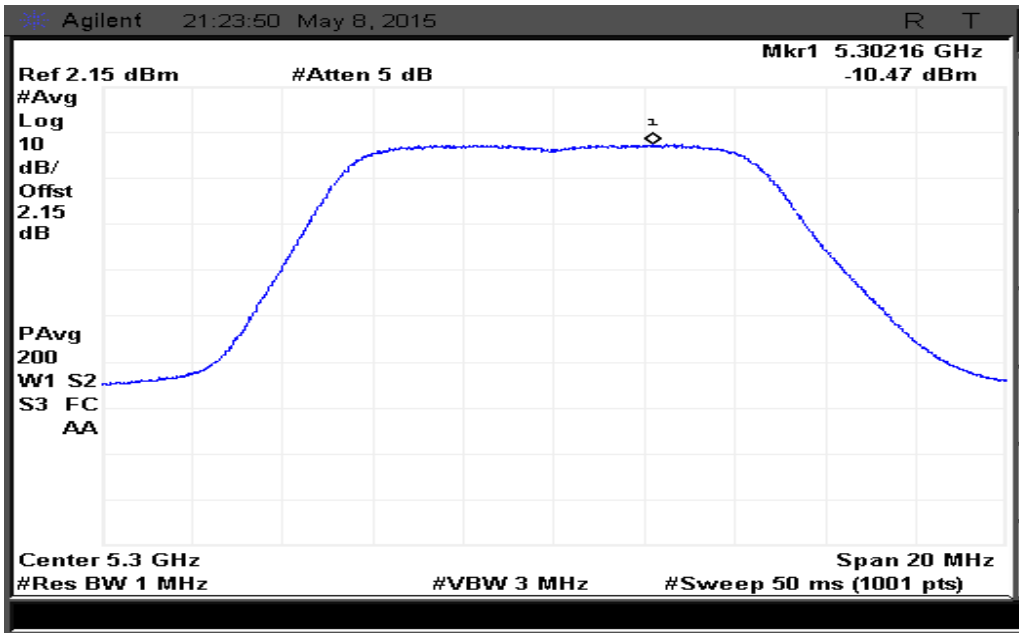

Figure 147: Power Spectral density measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.7.6 10MHz Modulation BW-High channel_5335 MHz

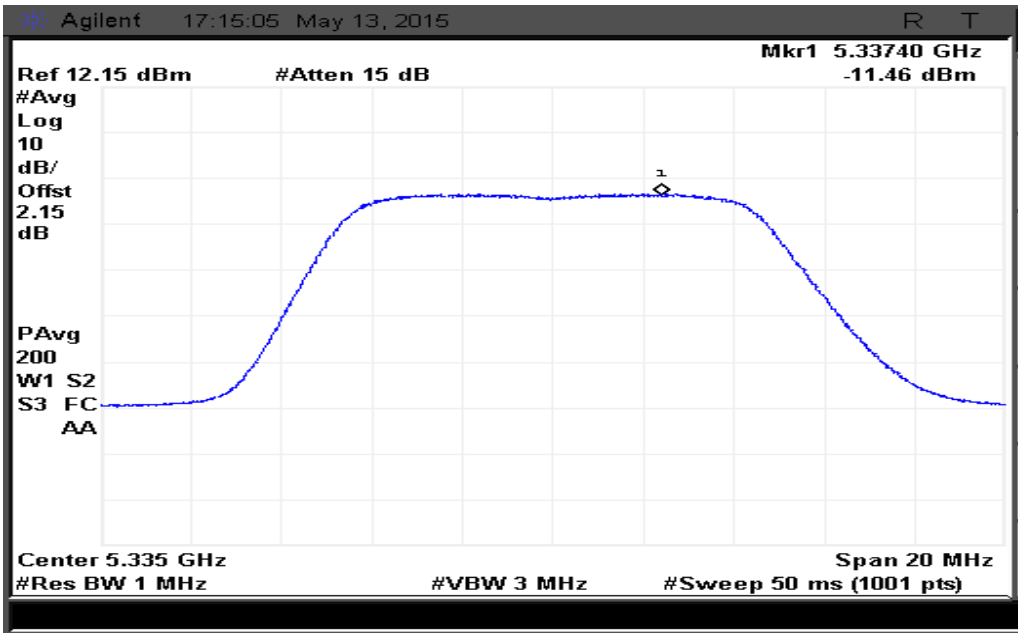

Figure 148: Power Spectral density measured at Ch. 0

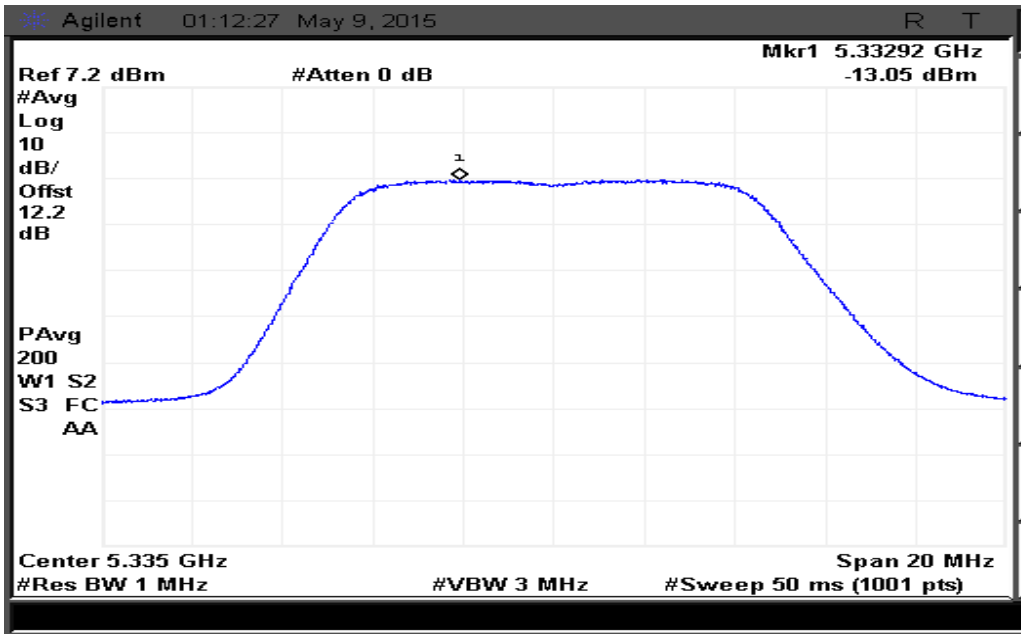

Figure 149: Power Spectral density measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.4.8 RESULT

Peak Power Spectral Density for all channels in both 40MHz &10MHz Modulation Bandwidths is within the Specified limit. Refer below table for consolidated result.

Condition	Modulation Bandwidth (MHz)	Antenna path	Channel Frequency (MHz)	Recorded value (dBm/MHz)	Limit (dBm/MHz)	Result
Basic	40	Ch. 0	5280	-6.683	8	Pass
Basic	40	Ch. 0	5300	4.157	8	Pass
Basic	40	Ch. 0	5320	-4.484	8	Pass
Basic	40	Ch. 1	5280	-7.694	8	Pass
Basic	40	Ch. 1	5300	3.340	8	Pass
Basic	40	Ch. 1	5320	-7.025	8	Pass
Basic	10	Ch. 0	5265	6.539	8	Pass
Basic	10	Ch. 0	5300	4.441	8	Pass
Basic	10	Ch. 0	5335	7.421	8	Pass
Basic	10	Ch. 1	5265	4.037	8	Pass
Basic	10	Ch. 1	5300	7.039	8	Pass
Basic	10	Ch. 1	5335	7.115	8	Pass
17dBi	40	Ch. 0	5280	-20.39	-3	Pass
17dBi	40	Ch. 0	5300	-7.233	-3	Pass
17dBi	40	Ch. 0	5320	-22.81	-3	Pass
17dBi	40	Ch. 1	5280	-20.87	-3	Pass
17dBi	40	Ch. 1	5300	-6.523	-3	Pass
17dBi	40	Ch. 1	5320	-22.95	-3	Pass
17dBi	10	Ch. 0	5265	-4.146	-3	Pass
17dBi	10	Ch. 0	5300	-3.342	-3	Pass
17dBi	10	Ch. 0	5335	-3.528	-3	Pass
17dBi	10	Ch. 1	5265	-4.373	-3	Pass
17dBi	10	Ch. 1	5300	-3.056	-3	Pass
17dBi	10	Ch. 1	5335	-3.489	-3	Pass
24dBi	40	Ch. 0	5280	-28.51	-10	Pass
24dBi	40	Ch. 0	5300	-15.78	-10	Pass
24dBi	40	Ch. 0	5320	-30.6	-10	Pass
24dBi	40	Ch. 1	5280	-26.18	-10	Pass
24dBi	40	Ch. 1	5300	-13.23	-10	Pass
24dBi	40	Ch. 1	5320	-29.8	-10	Pass
24dBi	10	Ch. 0	5265	-11.34	-10	Pass
24dBi	10	Ch. 0	5300	-10.22	-10	Pass
24dBi	10	Ch. 0	5335	-11.46	-10	Pass
24dBi	10	Ch. 1	5265	-13.54	-10	Pass
24dBi	10	Ch. 1	5300	-10.47	-10	Pass
24dBi	10	Ch. 1	5335	-13.05	-10	Pass

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.5 PEAK EXCURSION RATIO

5.3.5.1 TEST SPECIFICATION

Test Standard	47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C RSS-Gen, Issue 4, Nov 2014
Test Procedure	ANSI C63.10-2013
Frequency Range	5250 MHz to 5350 MHz
Resolution Bandwidth	1MHz
Video Bandwidth	3MHz
Sweep Time	50msec
Attenuation	Auto
Test Mode	Conducted
Detector	Peak
Input Voltage	120V AC
Input Frequency	60 Hz
Temperature	22.0°C
Humidity	56.0%
Tested By	Subhendu
Test Date	05th May to 12th May 2015

5.3.5.2 LIMITS

The Ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power shall not exceed 13dB across any 1MHz bandwidth or the emission bandwidth whichever is less.

5.3.5.3 TEST SETUP

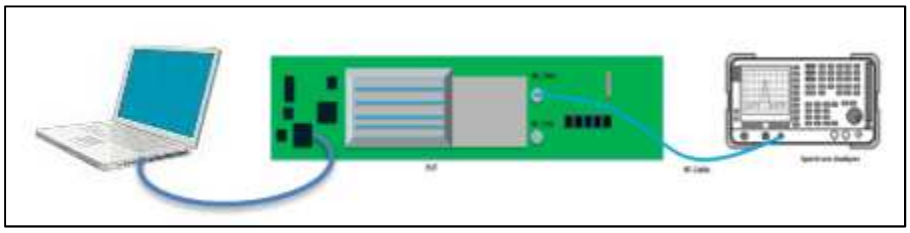

Figure 150: Typical test setup for Conducted Test setup

5.3.5.4 TEST PROCEDURE

The Conducted test was performed using the Spectrum analyzer. Measurements were done as per Section G of**"789033 D01 General UNII Test Procedures Old Rules v01r04".** The RF output of the EUT was connected to the input port of Spectrum analyzer using an attenuator. Captured the data from spectrum analyzer and compared with the limits specified in the standard.

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.5.5 RESULT (SUPPORTING GRAPHS / DATA) FOR BASIC CONDITION

5.3.5.5.1 40MHZ MODULATION BW-LOW CHANNEL_5280 MHZ

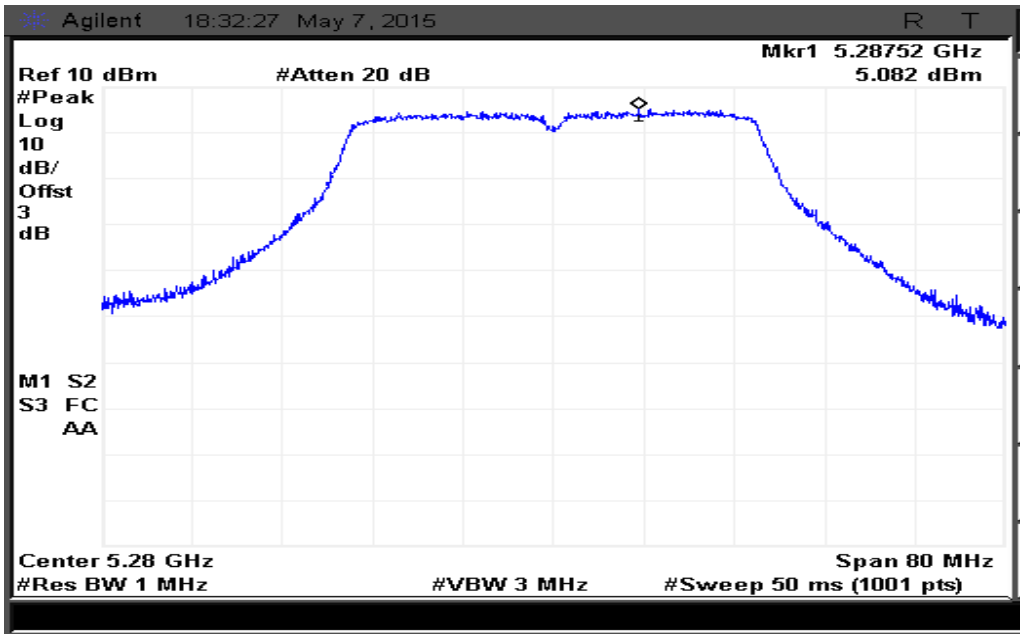

Figure 151: Peak Excursion Ratio plot measured at Ch. 0

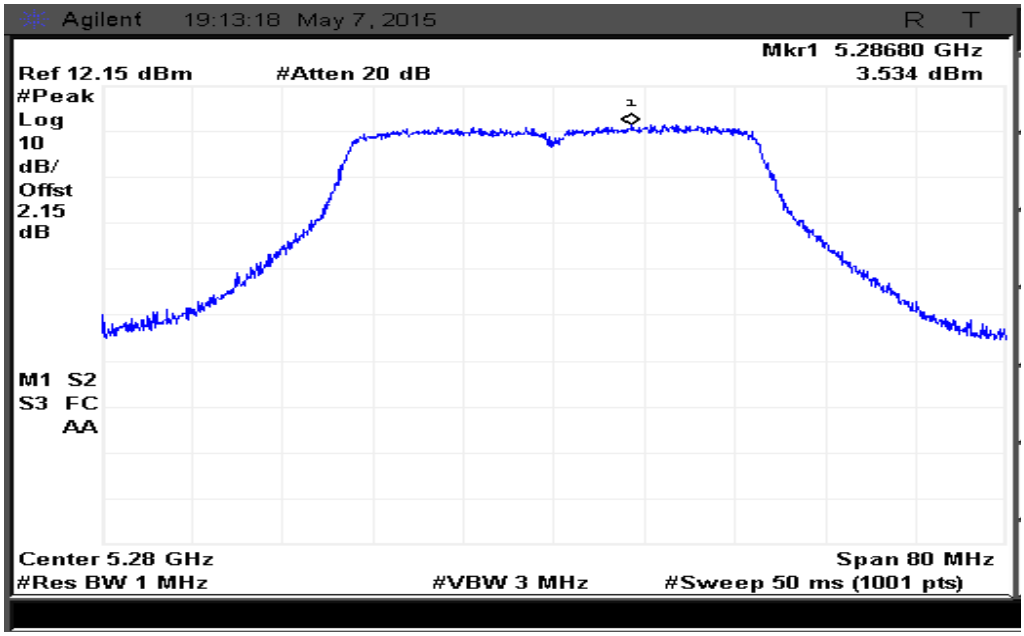

Figure 152: Peak Excursion Ratio plot measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.5.5.2 40MHz Modulation BW-Mid channel_5300 MHz

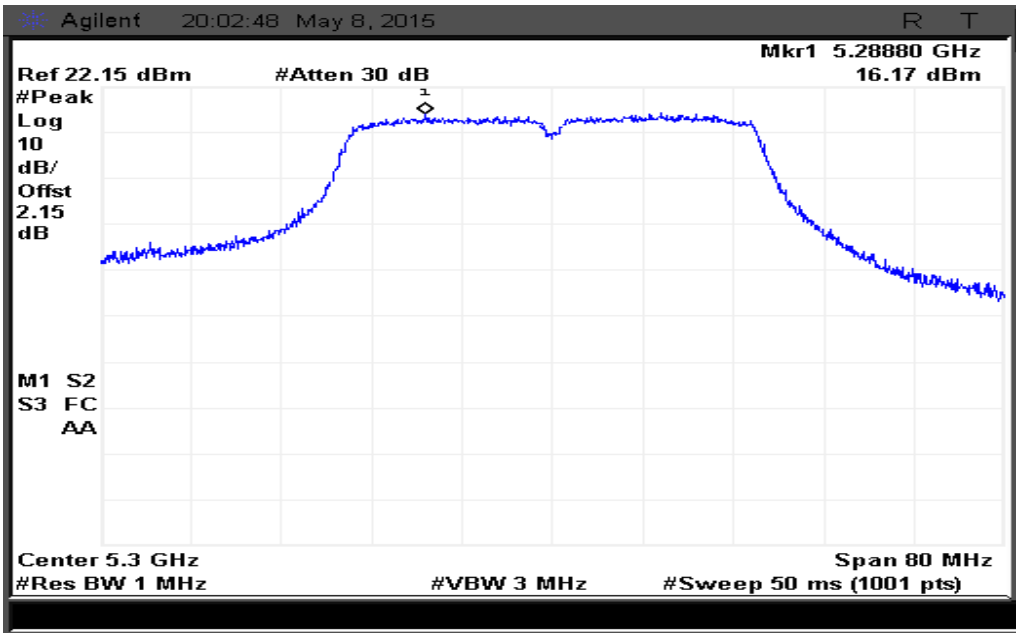

Figure 153: Peak Excursion Ratio plot measured at Ch. 0

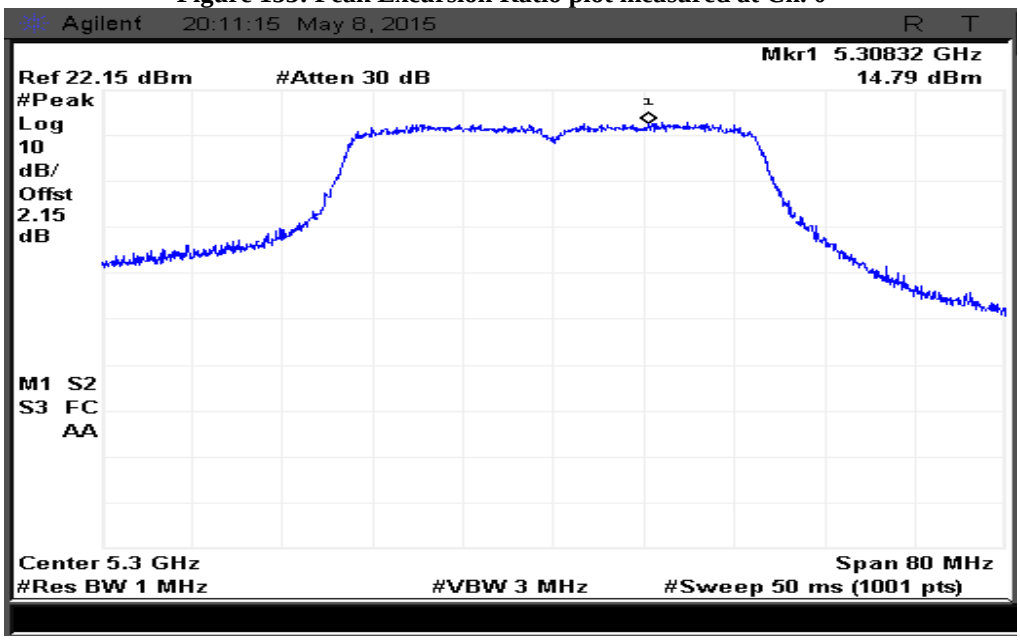

Figure 154: Peak Excursion Ratio plot measured at Ch. 1

5.3.5.5.3 40MHz MODULATION BW-HIGH CHANNEL_5320MHz

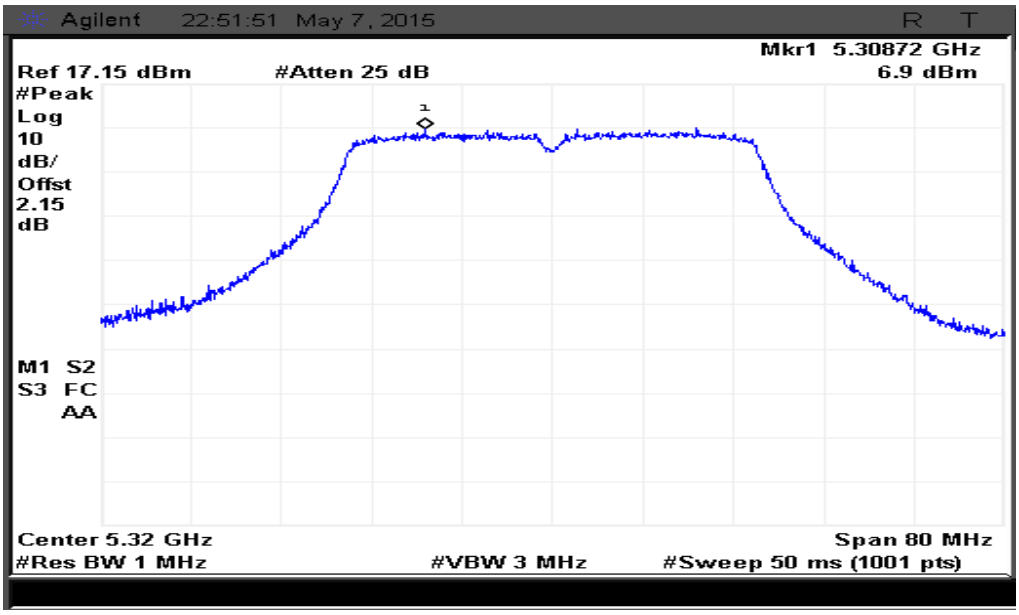

Figure 155: Peak Excursion Ratio plot measured at Ch. 0

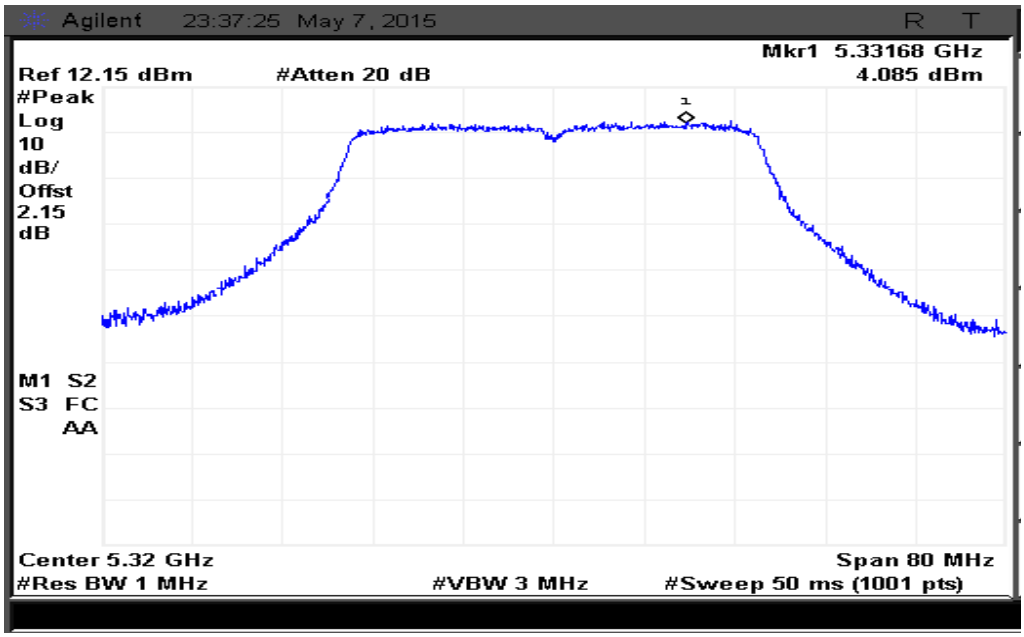

Figure 156: Peak Excursion Ratio plot measured at Ch. 1

5.3.5.5.4 10MHz Modulation BW-Low channel_5265 MHz

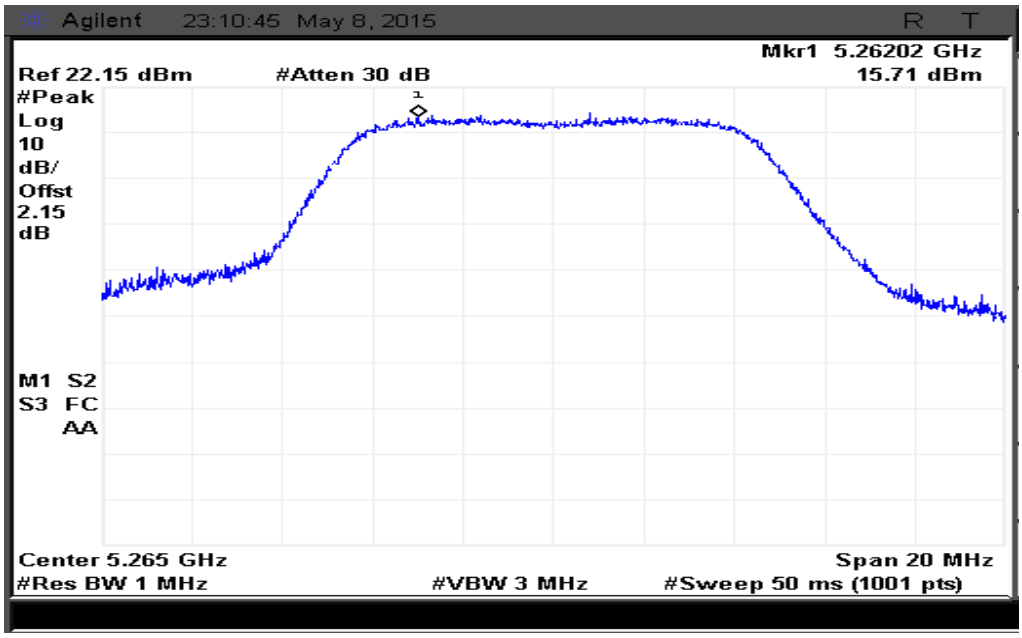

Figure 157: Peak Excursion Ratio plot measured at Ch. 0

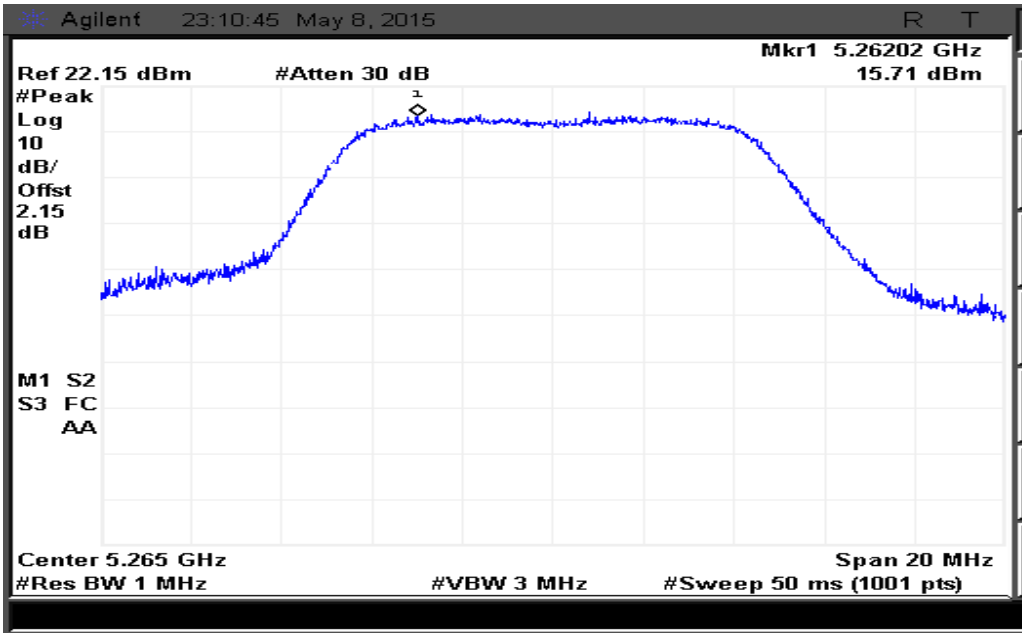

Figure 158: Peak Excursion Ratio plot measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.5.5.5 10MHz Modulation BW-Mid channel_5300 MHz

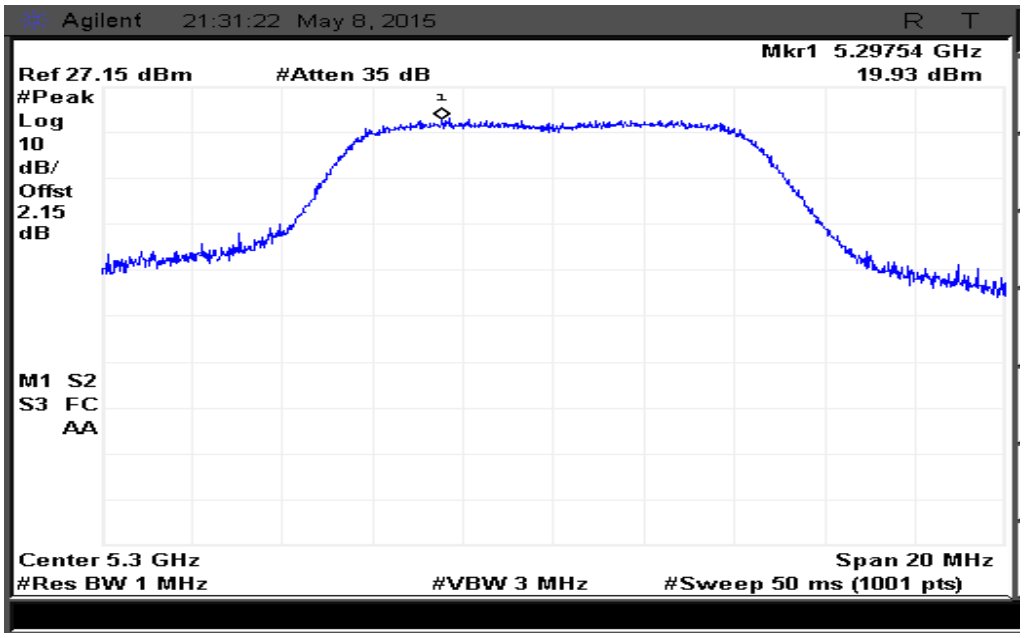

Figure 159: Peak Excursion Ratio plot measured at Ch. 0

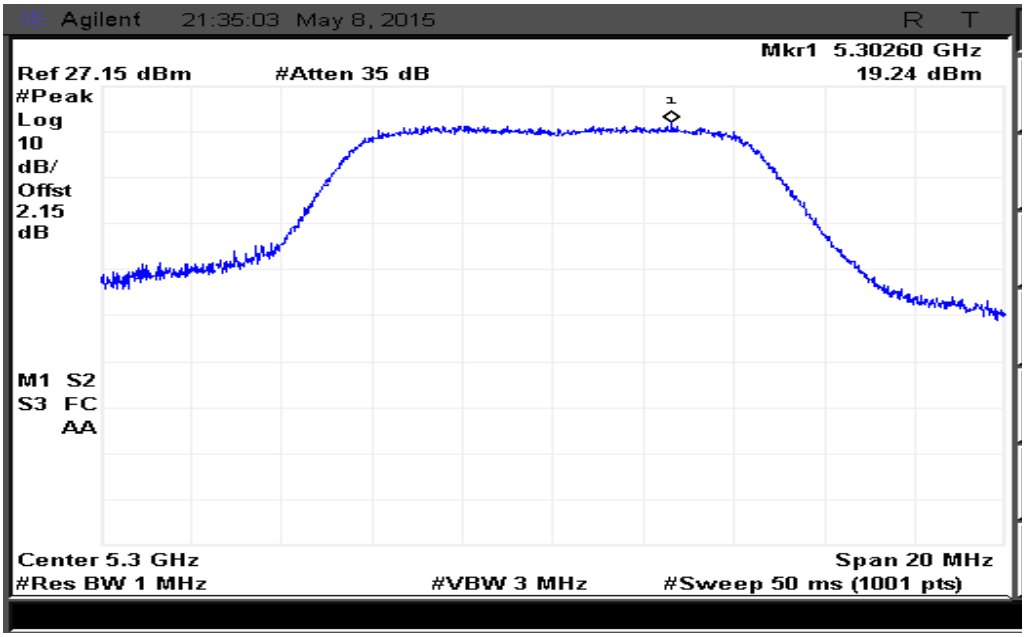

Figure 160: Peak Excursion Ratio plot measured at Ch. 1

5.3.5.5.6 10MHz Modulation BW-High channel_5335 MHz

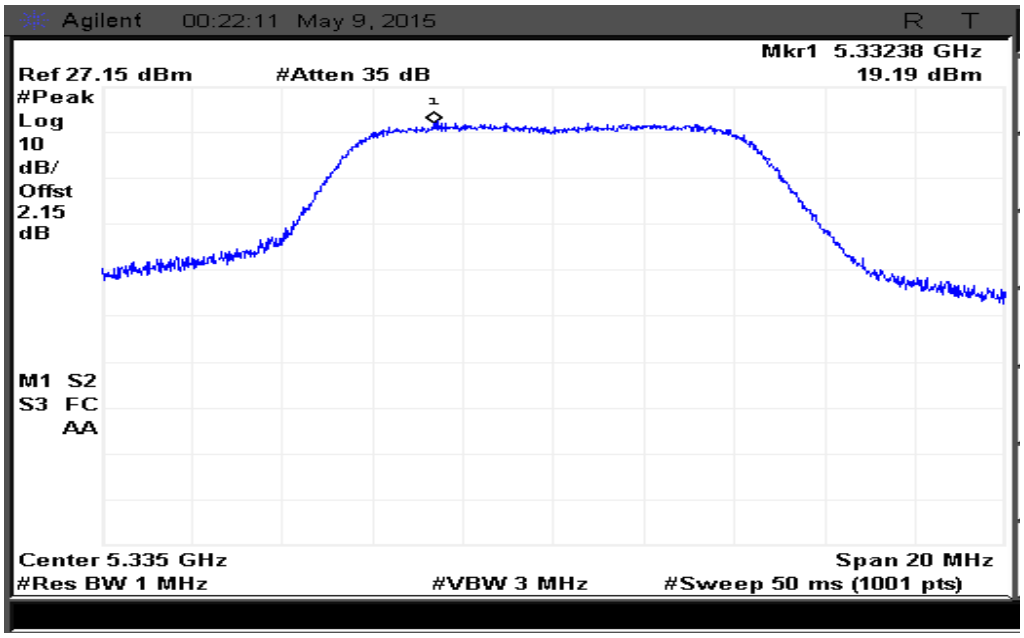

Figure 161: Peak Excursion Ratio plot measured at Ch. 0

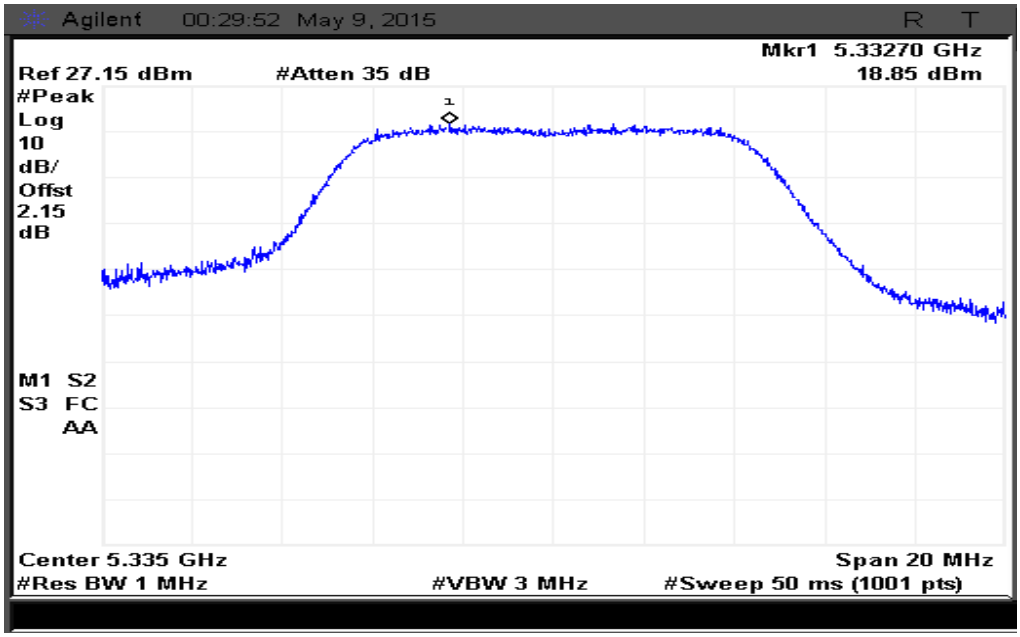

Figure 162: Peak Excursion Ratio plot measured at Ch. 1

5.3.5.6 RESULT (SUPPORTING GRAPHS / DATA) FOR 17DBI ANTENNA CONDITION

5.3.5.6.1 40MHZ MODULATION BW-LOW CHANNEL_5280 MHZ

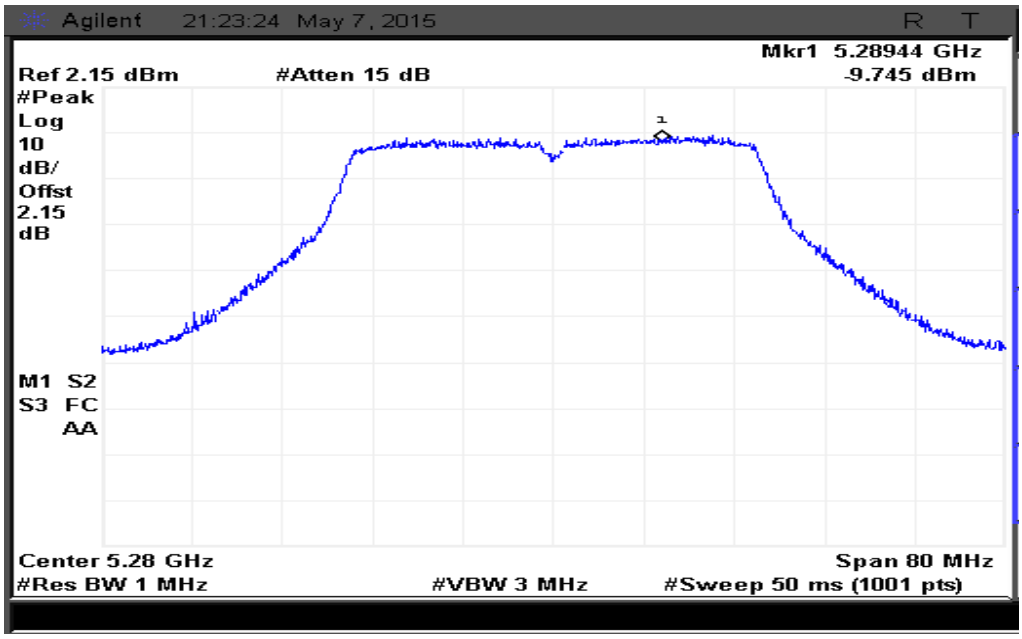

Figure 163: Peak Excursion Ratio plot measured at Ch. 0

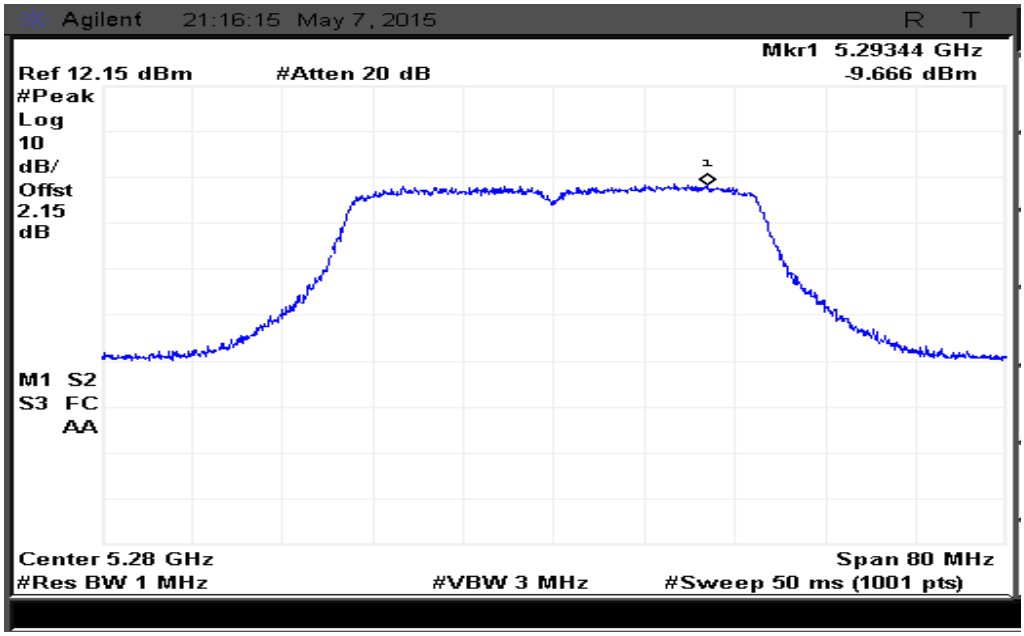

Figure 164: Peak Excursion Ratio plot measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.5.6.2 40MHz Modulation BW-Mid channel_5300 MHz

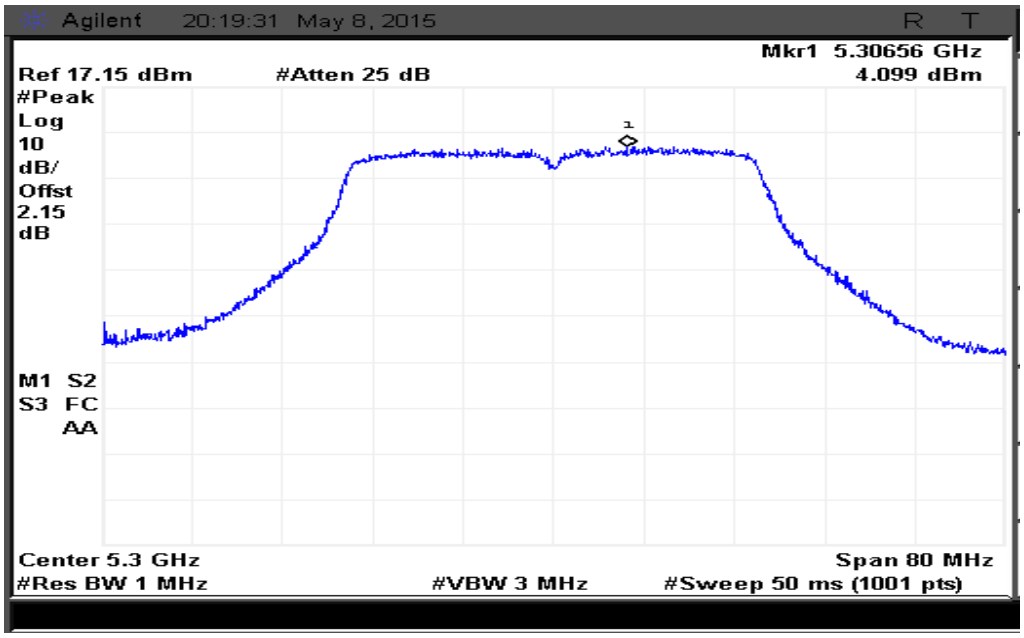

Figure 165: Peak Excursion Ratio plot measured at Ch. 0

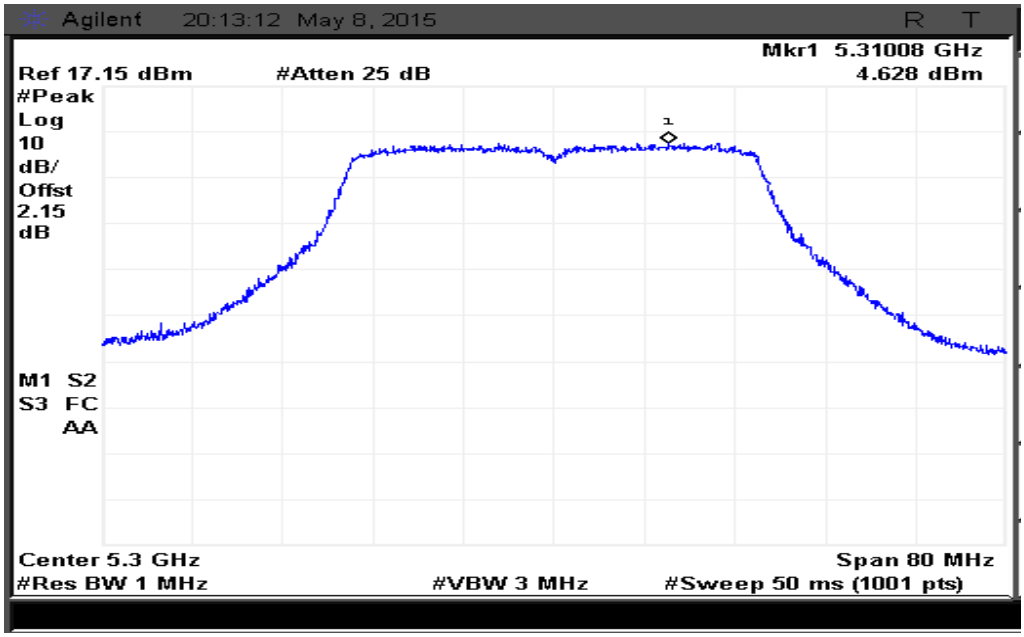

Figure 166: Peak Excursion Ratio plot measured at Ch. 1

5.3.5.6.3 40MHz Modulation BW-High channel_5320MHz

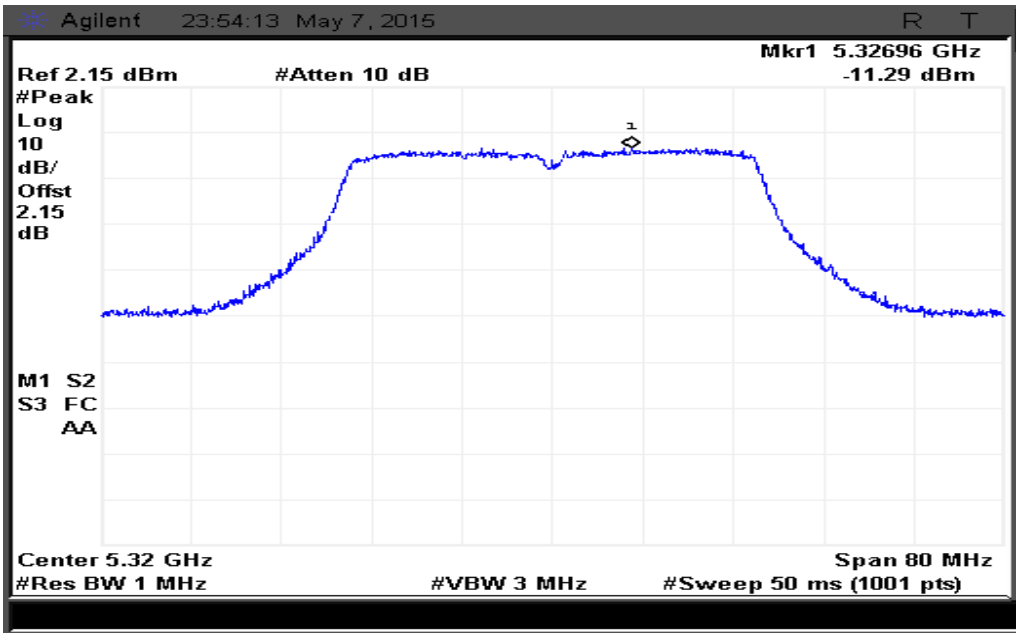

Figure 167: Peak Excursion Ratio plot measured at Ch. 0

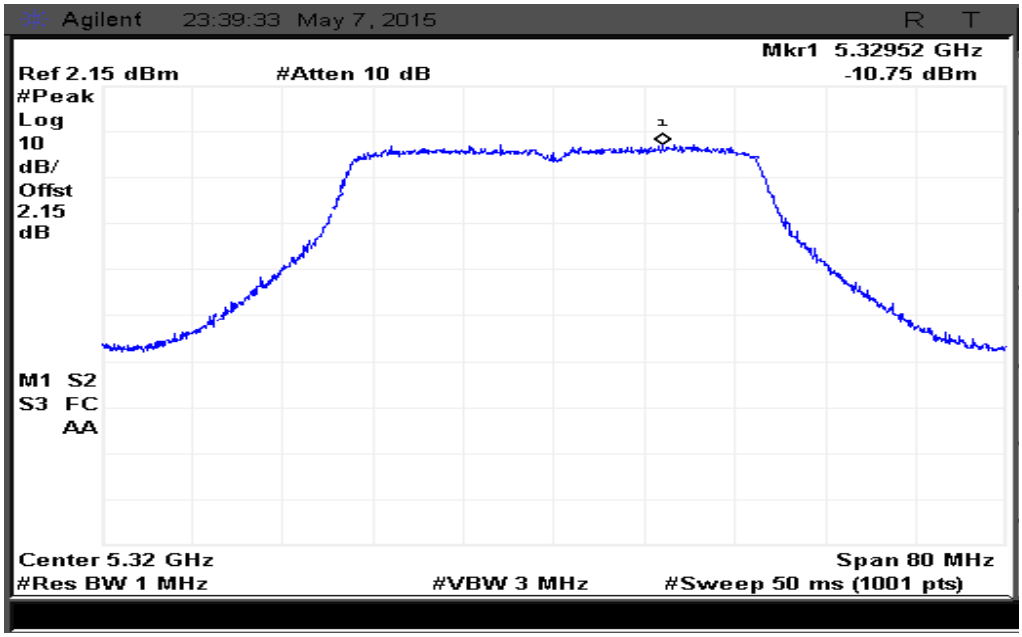

Figure 168: Peak Excursion Ratio plot measured at Ch. 1

5.3.5.6.4 10MHz Modulation BW-Low channel_5265 MHz

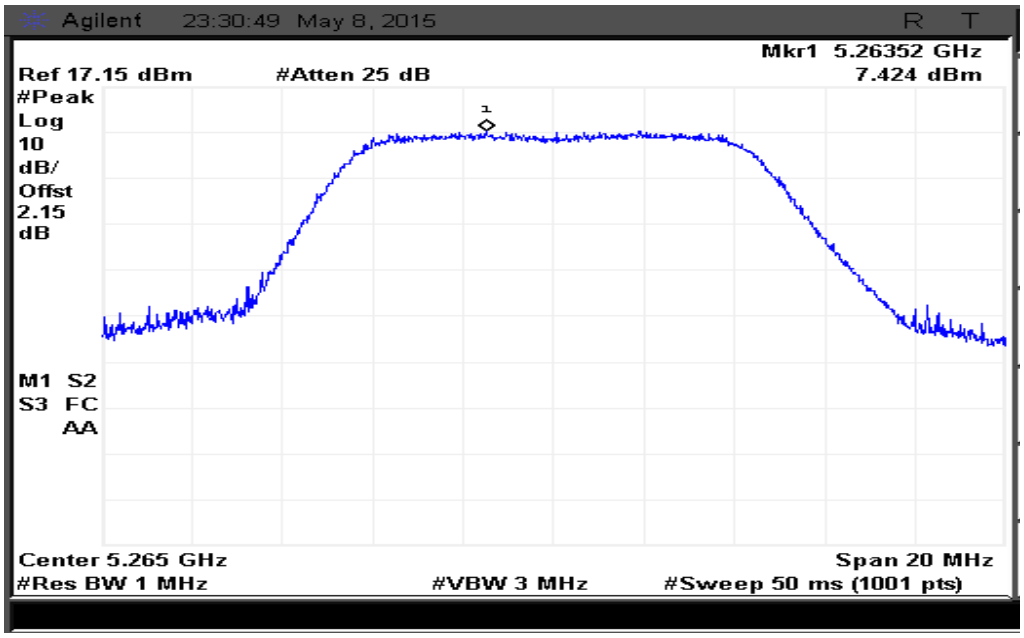

Figure 169: Peak Excursion Ratio plot measured at Ch. 0

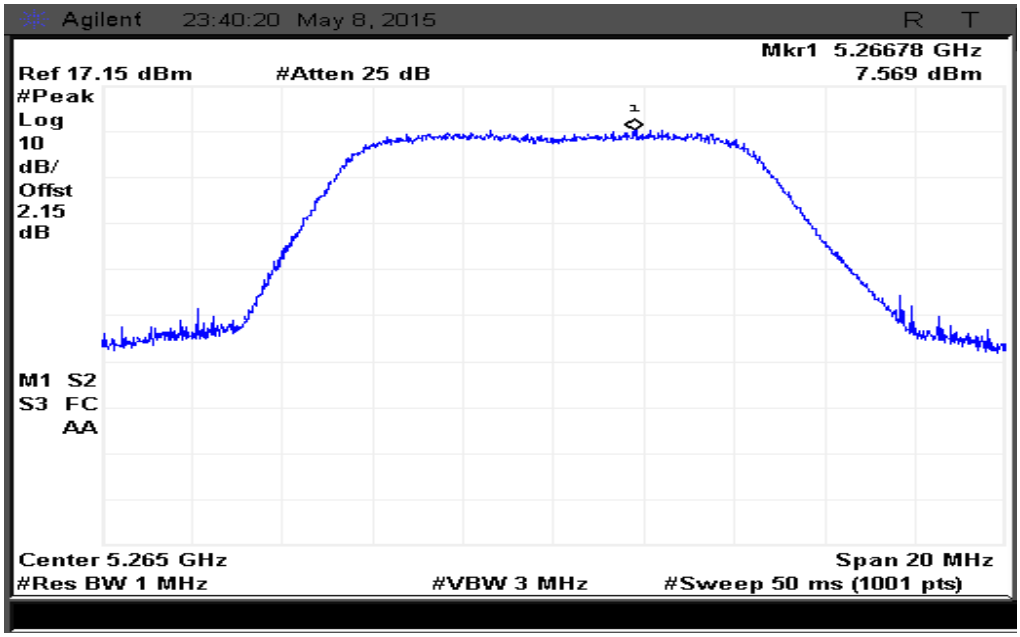

Figure 170: Peak Excursion Ratio plot measured at Ch. 1

5.3.5.6.5 10MHz Modulation BW-Mid channel_5300 MHz

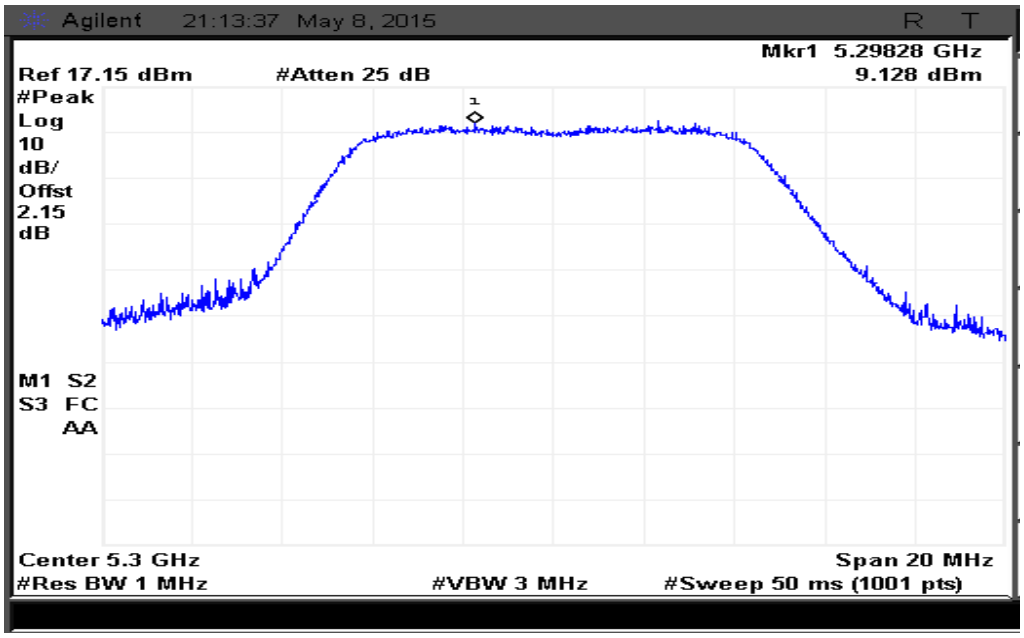

Figure 171: Peak Excursion Ratio plot measured at Ch. 0

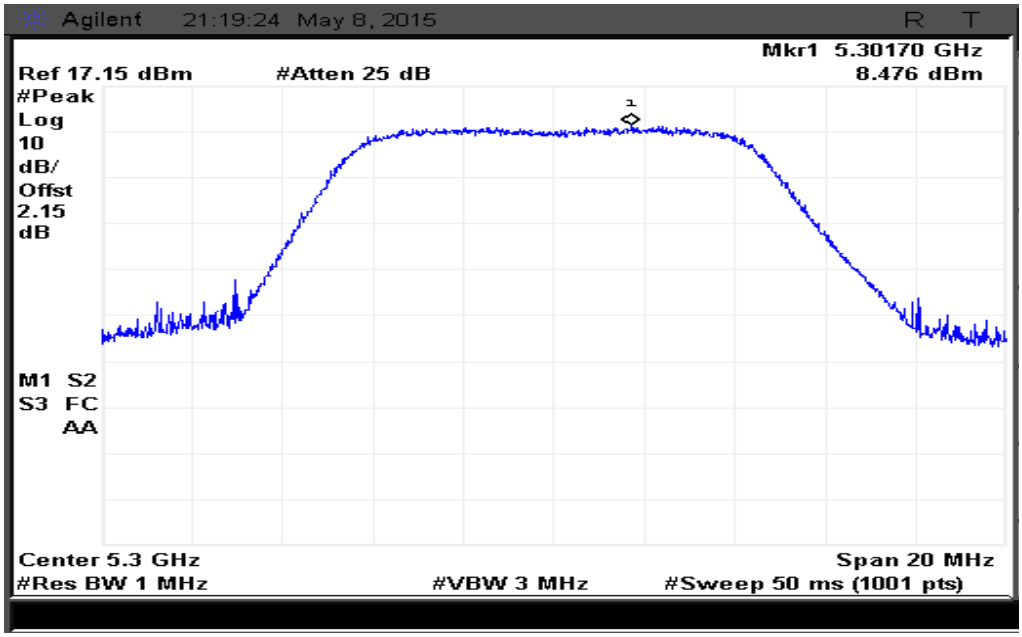

Figure 172: Peak Excursion Ratio plot measured at Ch. 1

5.3.5.6.6 10MHz Modulation BW-High channel_5335MHz

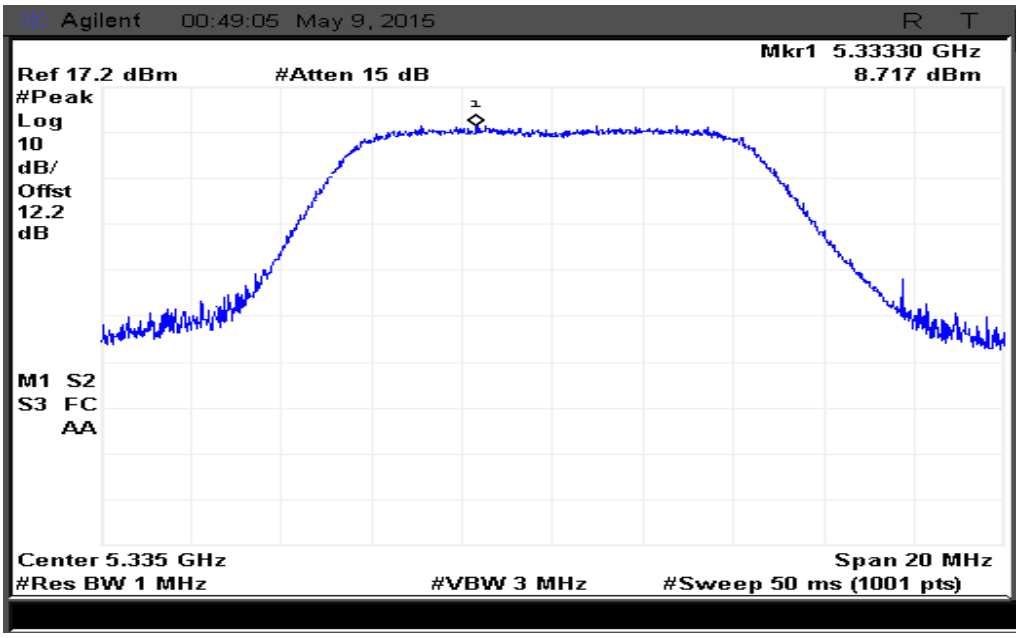

Figure 173: Peak Excursion Ratio plot measured at Ch. 0

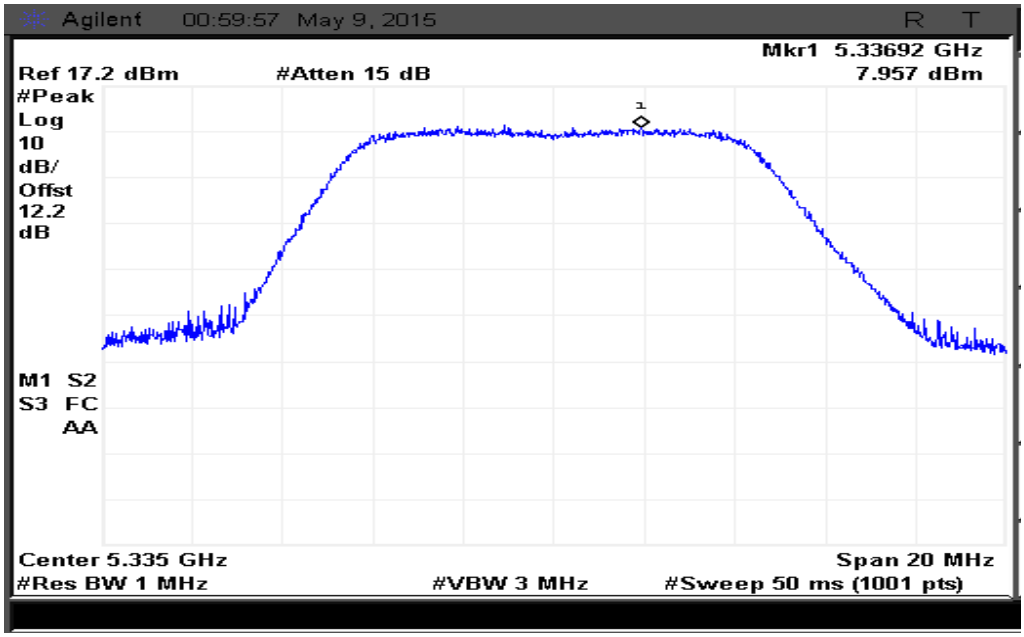

Figure 174: Peak Excursion Ratio plot measured at Ch. 1

5.3.5.7 RESULT (SUPPORTING GRAPHS / DATA) FOR 24DBI DIDH CONDITION

5.3.5.7.1 40MHZ MODULATION BW-LOW CHANNEL_5280 MHZ

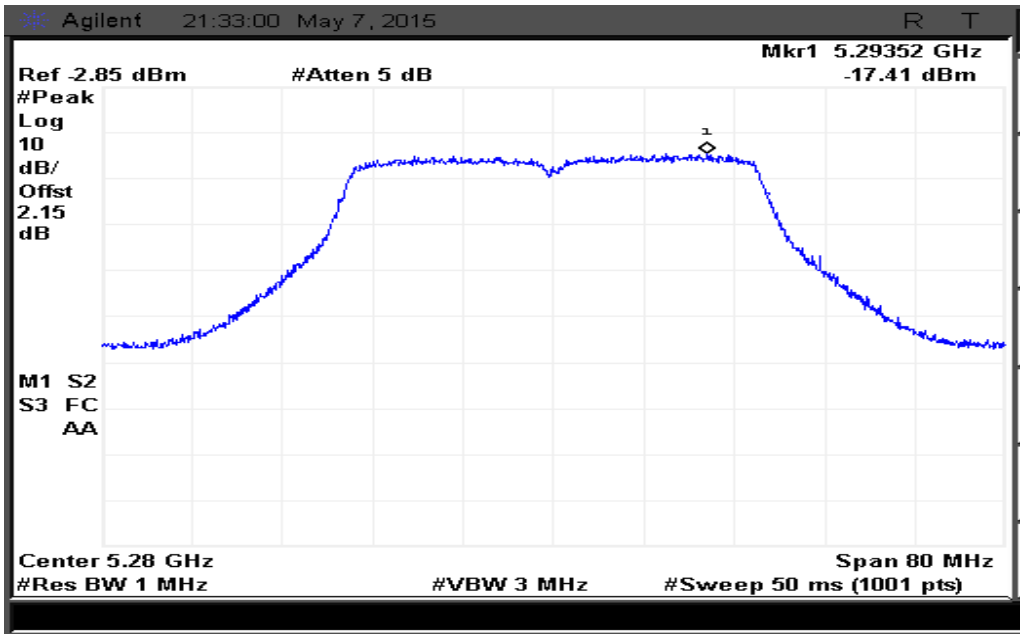

Figure 175: Peak Excursion Ratio plot measured at Ch. 0

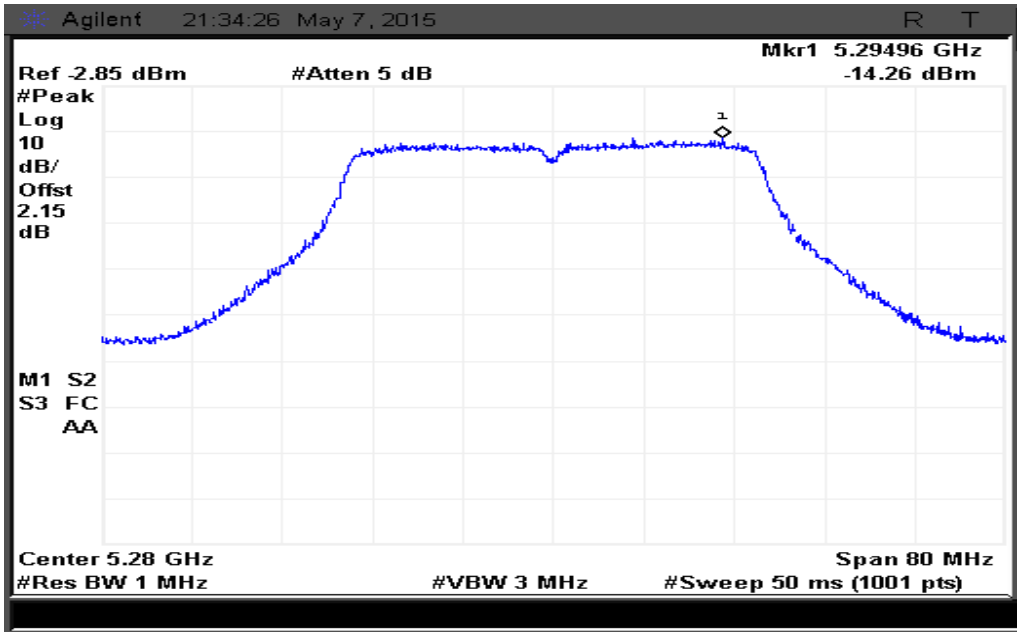

Figure 176: Peak Excursion Ratio plot measured at Ch. 1

5.3.5.7.2 40MHz Modulation BW-Mid channel_5300 MHz

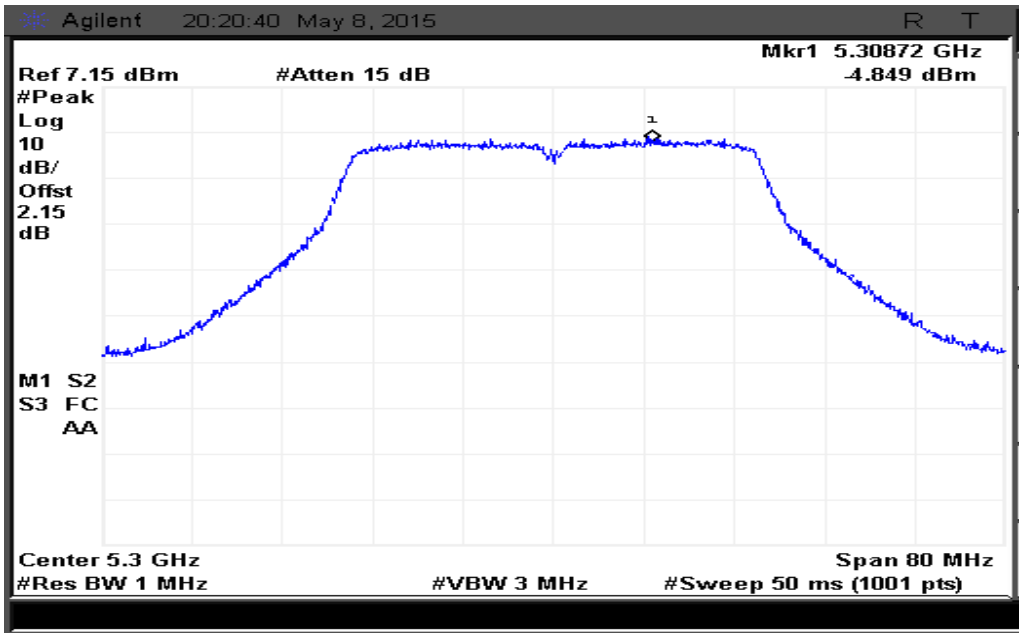

Figure 177: Peak Excursion Ratio plot measured at Ch. 0

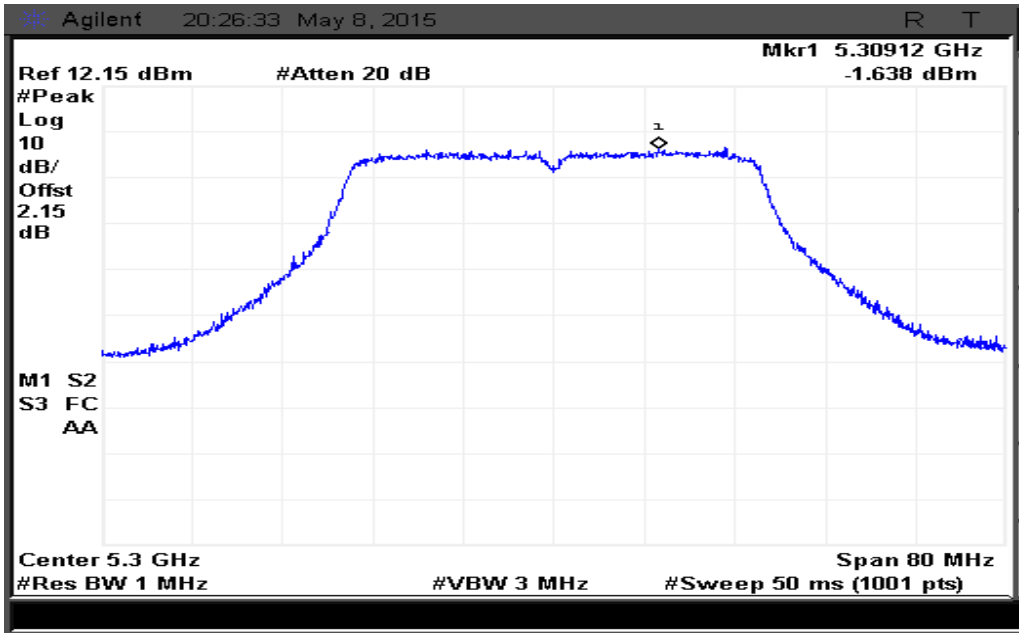

Figure 178: Peak Excursion Ratio plot measured at Ch. 1

5.3.5.7.3 40MHz Modulation BW-High channel_5320MHz

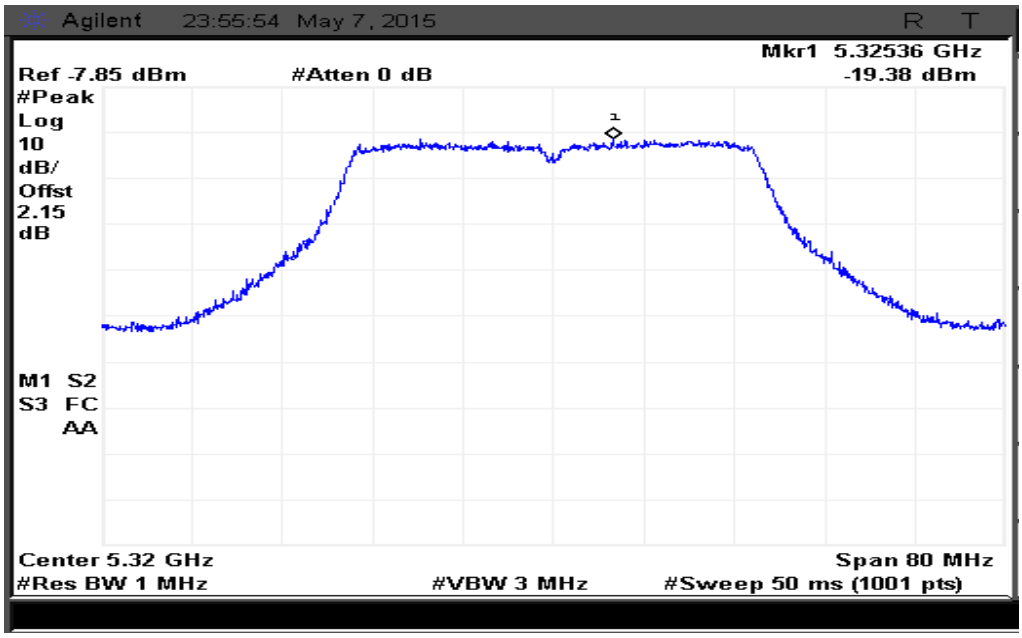

Figure 179: Peak Excursion Ratio plot measured at Ch. 0

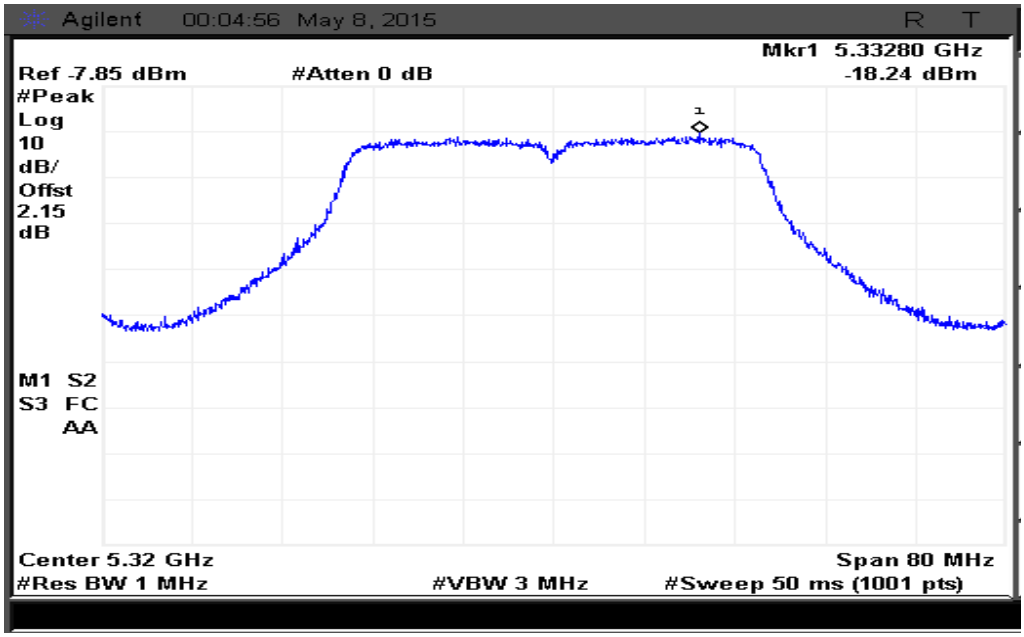

Figure 180: Peak Excursion Ratio plot measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.5.7.4 10MHz Modulation BW-Low channel_5265 MHz

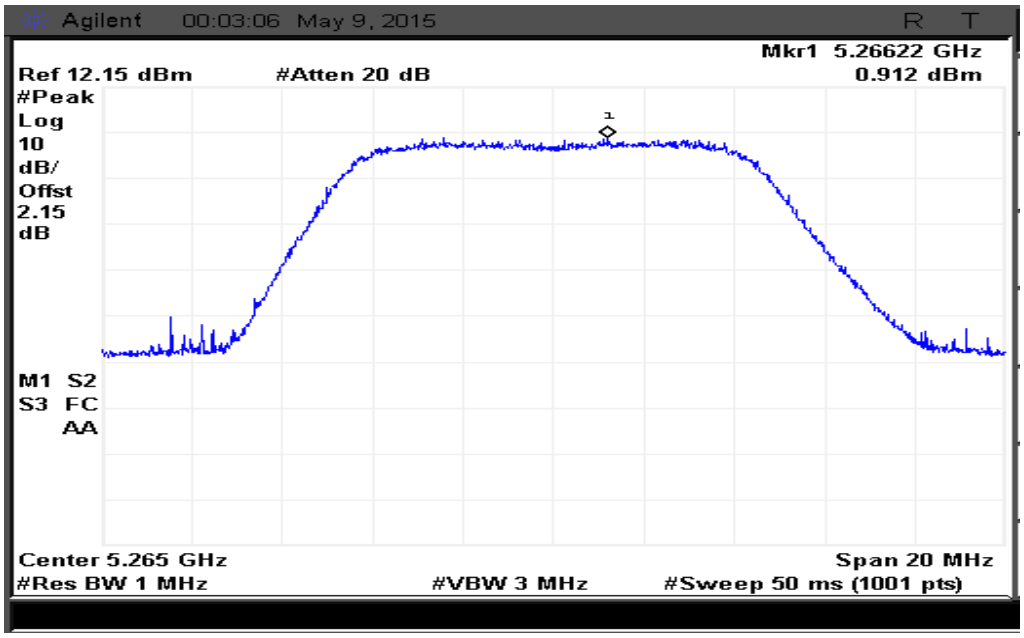

Figure 181: Peak Excursion Ratio plot measured at Ch. 0

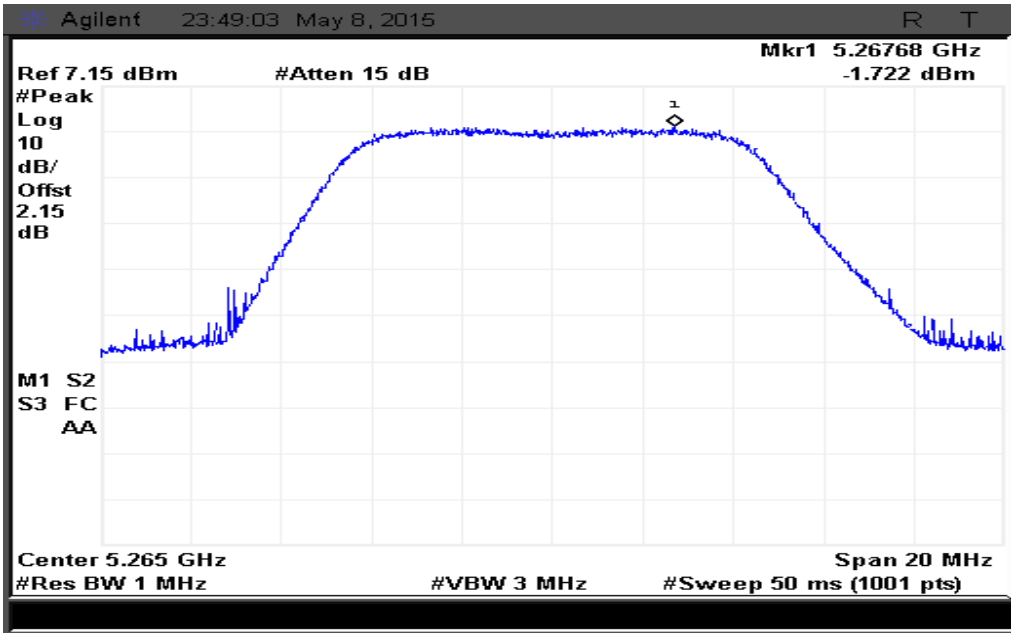

Figure 182: Peak Excursion Ratio plot measured at Ch. 1

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.5.7.5 10MHz Modulation BW-Mid channel_5300 MHz

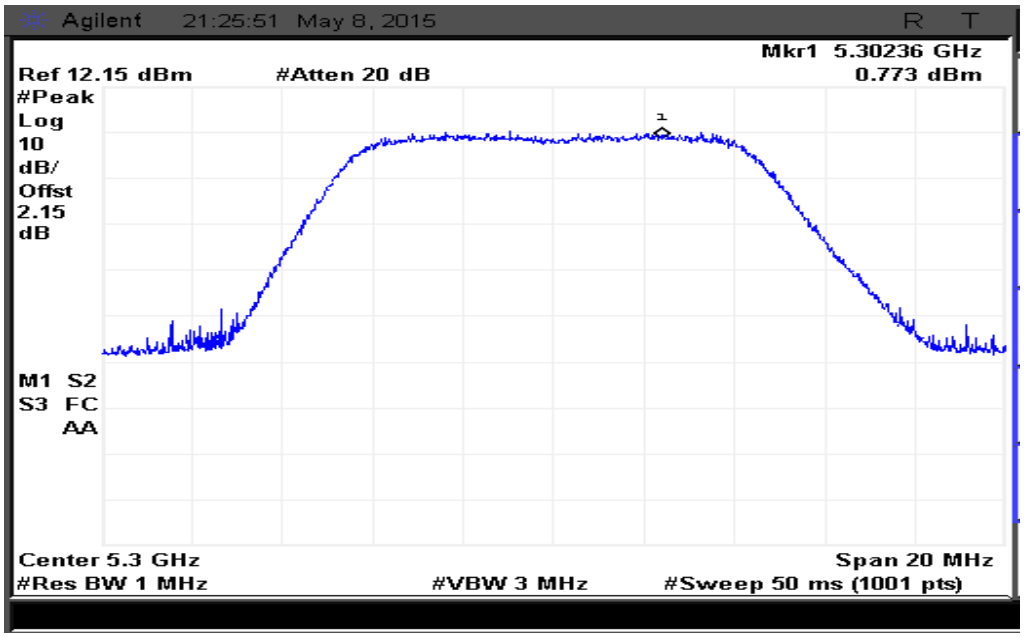

Figure 183: Peak Excursion Ratio plot measured at Ch. 0

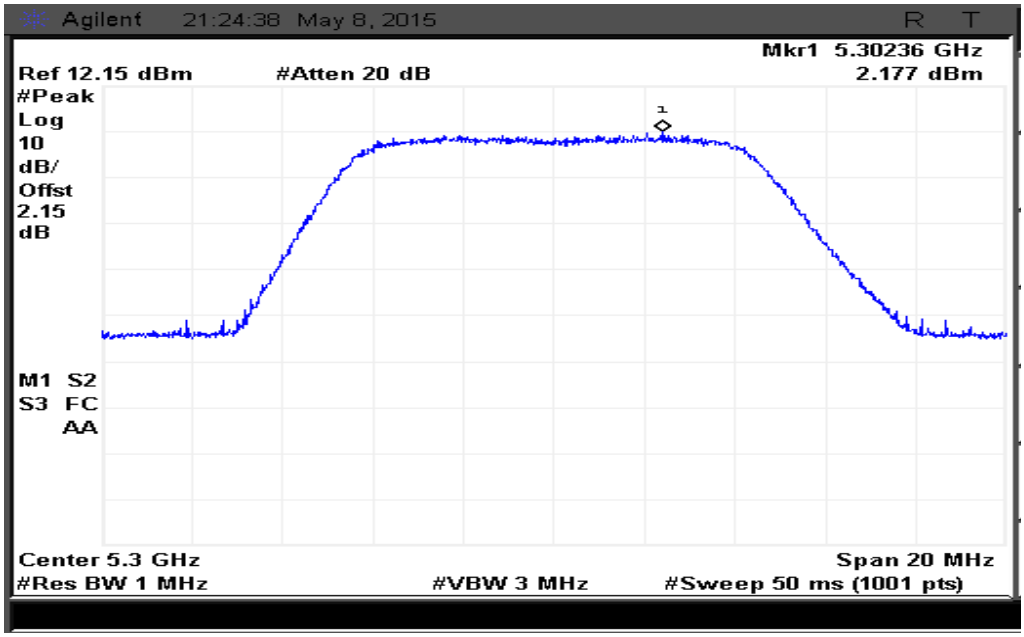

Figure 184: Peak Excursion Ratio plot measured at Ch. 1

5.3.5.7.6 10MHz Modulation BW-High channel_5335 MHz

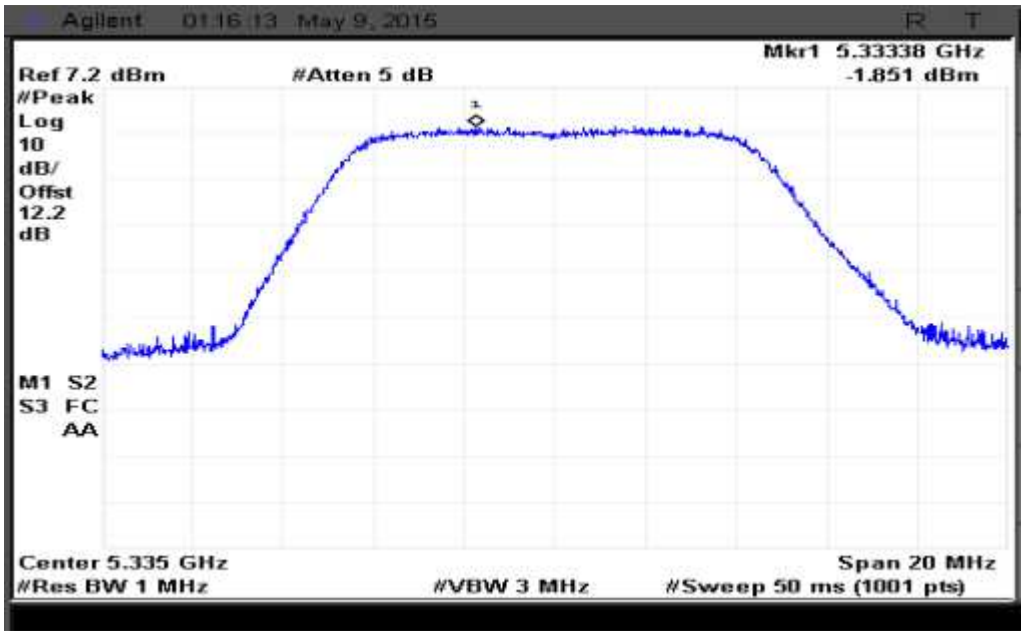

Figure 185: Peak Excursion Ratio plot measured at Ch. 0

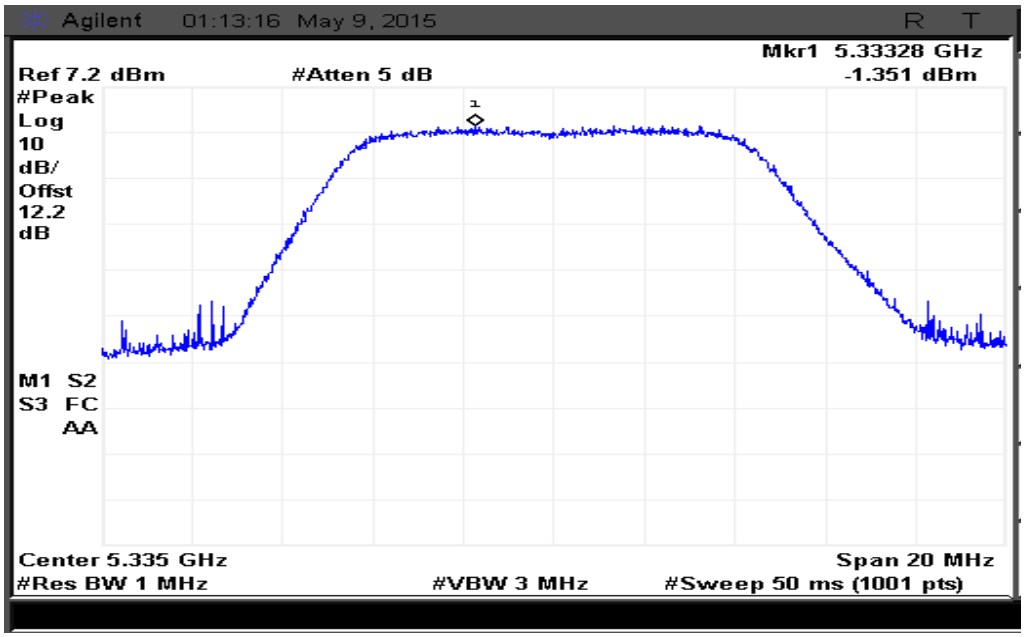

Figure 186: Peak Excursion Ratio plot measured at Ch. 1

5.3.5.8 RESULT

Peak Power Spectral Density for all channels in both 40MHz & 10MHz Modulation Bandwidths is within the Specified limit. Refer below table for consolidated result.

Condition	Mod. BW (MHz)	Ant. path	Channel Freq. (MHz)	PPSD value (dBm/MHz)	Recorded value (dBm)	Peak Excursion (dB)	Limit (dB)	Result
Basic	40	Ch. 0	5280	-6.683	5.082	11.765	<13	Pass
Basic	40	Ch. 0	5300	4.157	16.17	12.013	<13	Pass
Basic	40	Ch. 0	5320	-4.484	6.9	11.384	<13	Pass
Basic	40	Ch. 1	5280	-7.694	3.534	11.228	<13	Pass
Basic	40	Ch. 1	5300	3.340	14.79	11.45	<13	Pass
Basic	40	Ch. 1	5320	-7.025	4.085	11.11	<13	Pass
Basic	10	Ch. 0	5265	6.539	15.71	9.171	<13	Pass
Basic	10	Ch. 0	5300	8.424	19.93	11.506	<13	Pass
Basic	10	Ch. 0	5335	7.421	19.19	11.769	<13	Pass
Basic	10	Ch. 1	5265	4.037	15.71	11.673	<13	Pass
Basic	10	Ch. 1	5300	7.039	19.24	12.201	<13	Pass
Basic	10	Ch. 1	5335	7.115	18.85	11.735	<13	Pass
17dBi	40	Ch. 0	5280	-20.39	-9.745	10.645	<13	Pass
17dBi	40	Ch. 0	5300	-7.233	4.099	11.332	<13	Pass
17dBi	40	Ch. 0	5320	-22.81	-11.29	11.52	<13	Pass
17dBi	40	Ch. 1	5280	-20.87	-9.666	11.204	<13	Pass
17dBi	40	Ch. 1	5300	-6.523	4.628	11.151	<13	Pass
17dBi	40	Ch. 1	5320	-22.95	-10.75	12.2	<13	Pass
17dBi	10	Ch. 0	5265	-4.146	7.424	11.57	<13	Pass
17dBi	10	Ch. 0	5300	-3.342	9.128	12.47	<13	Pass
17dBi	10	Ch. 0	5335	-3.528	8.717	12.245	<13	Pass
17dBi	10	Ch. 1	5265	-4.373	7.569	11.942	<13	Pass
17dBi	10	Ch. 1	5300	-3.056	8.476	11.532	<13	Pass
17dBi	10	Ch. 1	5335	-3.489	7.957	11.446	<13	Pass
24dBi	40	Ch. 0	5280	-28.51	-17.41	11.1	<13	Pass
24dBi	40	Ch. 0	5300	-15.78	-4.849	10.931	<13	Pass
24dBi	40	Ch. 0	5320	-30.6	-19.38	11.22	<13	Pass
24dBi	40	Ch. 1	5280	-26.18	-14.26	11.92	<13	Pass
24dBi	40	Ch. 1	5300	-13.23	-1.638	11.592	<13	Pass
24dBi	40	Ch. 1	5320	-29.8	-18.24	11.56	<13	Pass
24dBi	10	Ch. 0	5265	-11.34	0.912	12.252	<13	Pass
24dBi	10	Ch. 0	5300	-10.22	0.773	10.657	<13	Pass
24dBi	10	Ch. 0	5335	-11.46	-1.851	9.609	<13	Pass
24dBi	10	Ch. 1	5265	-13.54	-1.722	11.818	<13	Pass
24dBi	10	Ch. 1	5300	-10.47	2.177	12.647	<13	Pass
24dBi	10	Ch. 1	5335	-13.05	-1.351	11.699	<13	Pass

Note:

Peak Excursion Ratio value = Recorded value (dBm) – PPSD value (dBm/MHz)

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.6 UNWANTED EMISSIONS LEVELS-CONDUCTED BAND EDGE

5.3.6.1 TEST SPECIFICATION

Test Standard	47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C RSS-Gen, Issue 4, Nov 2014
Test Procedure	ANSI C63.10-2013
Frequency Range	5250 MHz to 5350 MHz
Resolution Bandwidth	1MHz
Video Bandwidth	3MHz
Sweep Time	Auto
Attenuation	Auto
Test Mode	Conducted
Detector	Peak & Average
Input Voltage	120V AC
Input Frequency	60 Hz
Temperature	22.0°C
Humidity	56.0%
Tested By	Subhendu
Test Date	05th May to 12th May 2015

5.3.6.2 LIMITS

Standard	**FCC Section**	**Antenna condition**	**Calculated Limit**
47 CFR Ch. I (10–1–14 Ed), Part 15, Subpart C RSS-Gen, Issue 4, Nov 2014	15.407 (b) (3)	2.15dBi Antenna	-32.15dBm/MHz
		17dBi Antenna	-47dBm/MHz
		24dBi dish	-54dBm/MHz

Limit as per standard is -27dBm / MHz. In this condition we have to consider MIMO condition & take 3dB Factor and also the antenna gain needs to be considered.
Calculated limit = -27dBm/MHz – 3 – Antenna gain

5.3.6.3 TEST SETUP

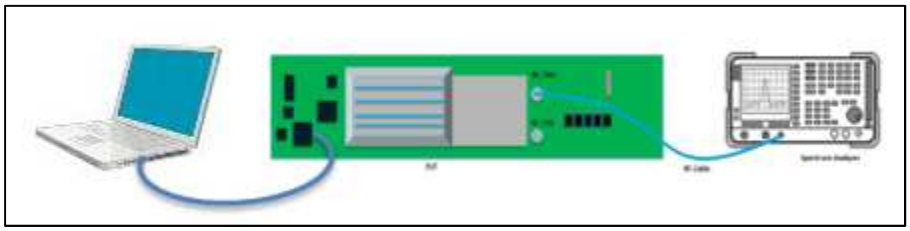

Figure 187: Typical test setup for Conducted Test setup

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.6.4 TEST PROCEDURE

The Conducted test was performed using the Spectrum analyzer. Measurements were done as per Sections H(1), H(2), H(3), H(5) & H(6) of **"789033 D01 General UNII Test Procedures Old Rules v01r04".** The RF output of the EUT was connected to the input port of Spectrum analyzer using an attenuator. Captured the data from spectrum analyzer and compared with the limits specified in the standard.

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.6.5 RESULT (SUPPORTING GRAPHS / DATA) FOR BASIC CONDITION

5.3.6.5.1 40MHZ MODULATION BW-LOW CHANNEL_5280 MHZ

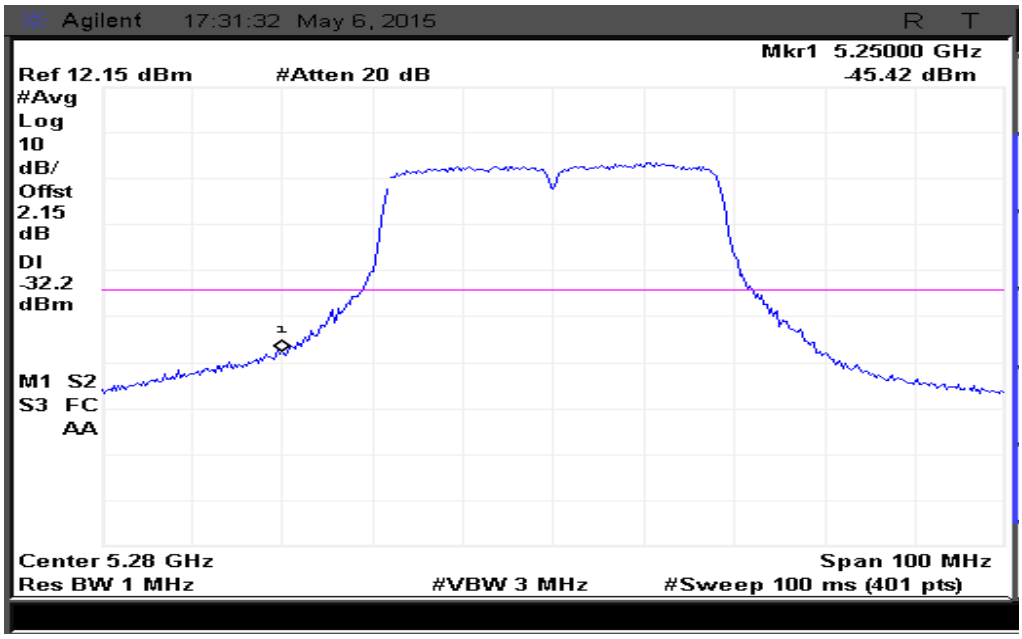

Figure 188: Band edge measured at Ch. 0-Avg

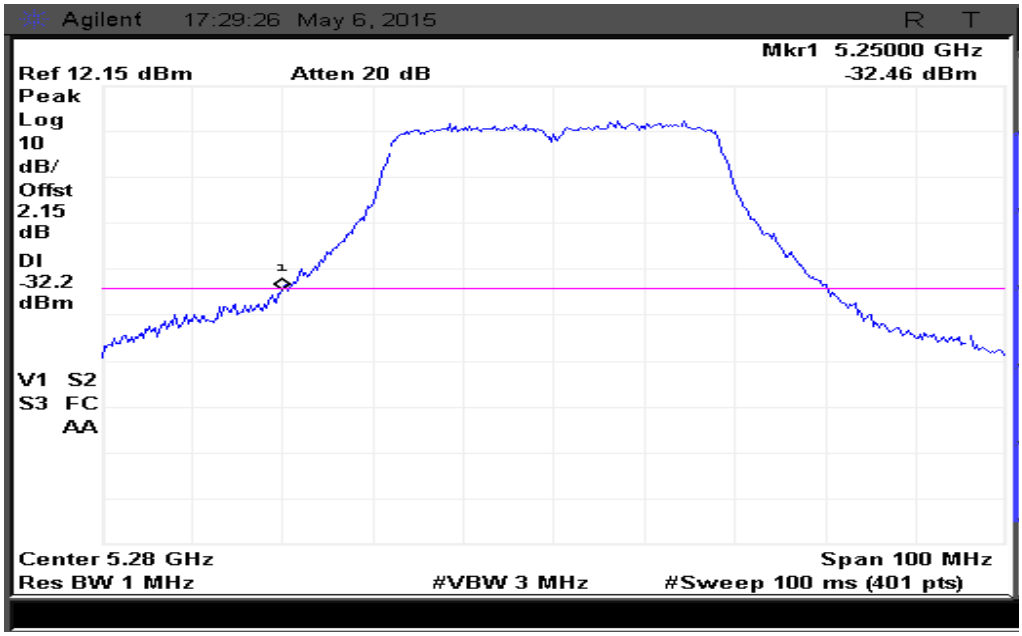

Figure 189: Band edge measured at Ch. 0-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

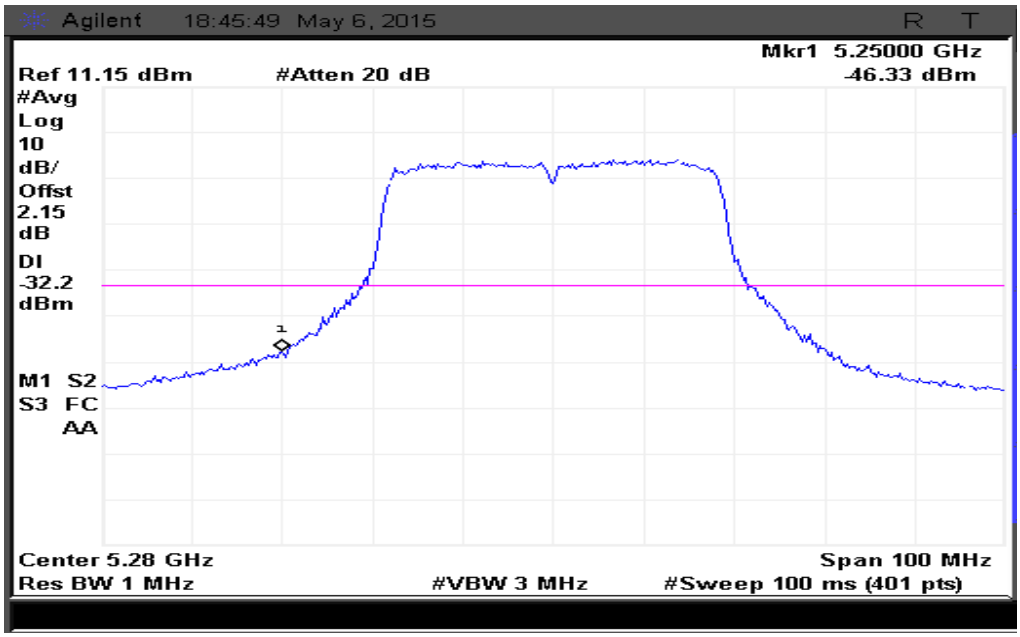

Figure 190: Band edge measured at Ch. 1-Avg

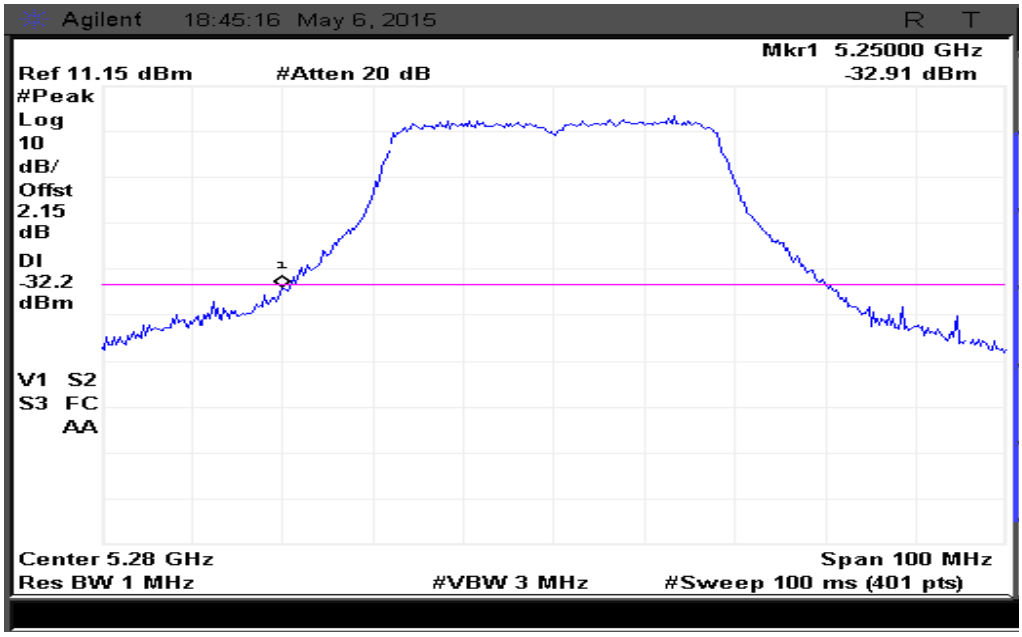

Figure 191: Band edge measured at Ch. 1-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.6.5.2 40MHz Modulation BW-High channel_5320MHz

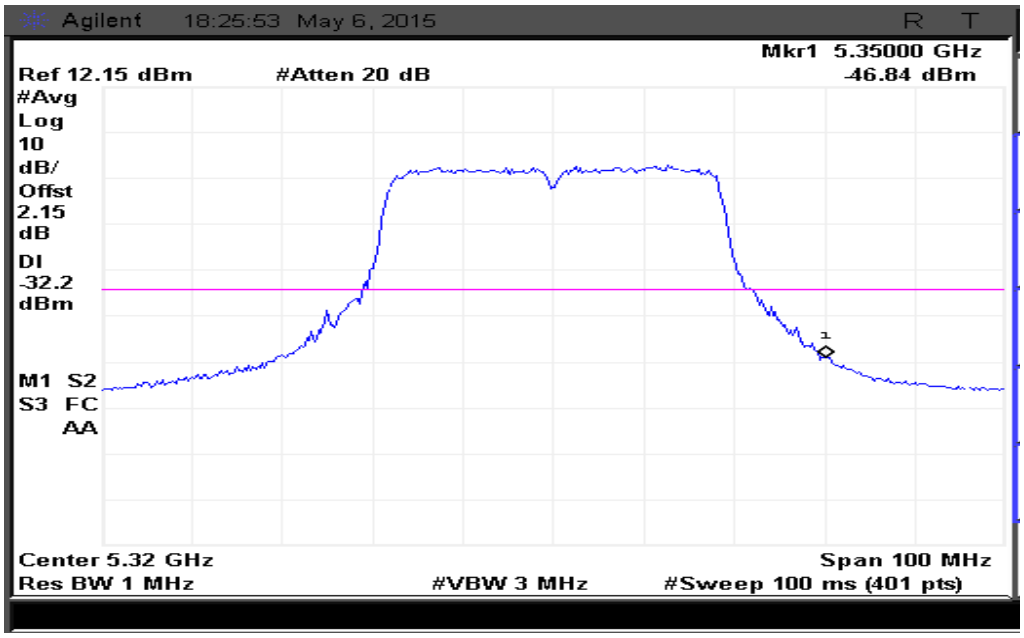

Figure 192: Band edge measured at Ch. 0-Avg

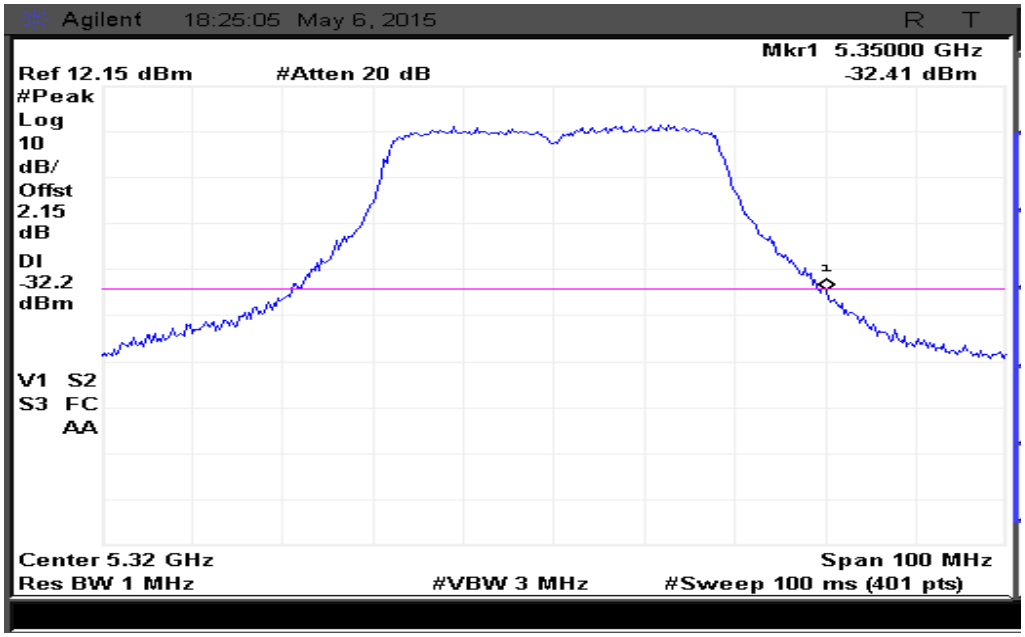

Figure 193: Band edge measured at Ch. 0-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

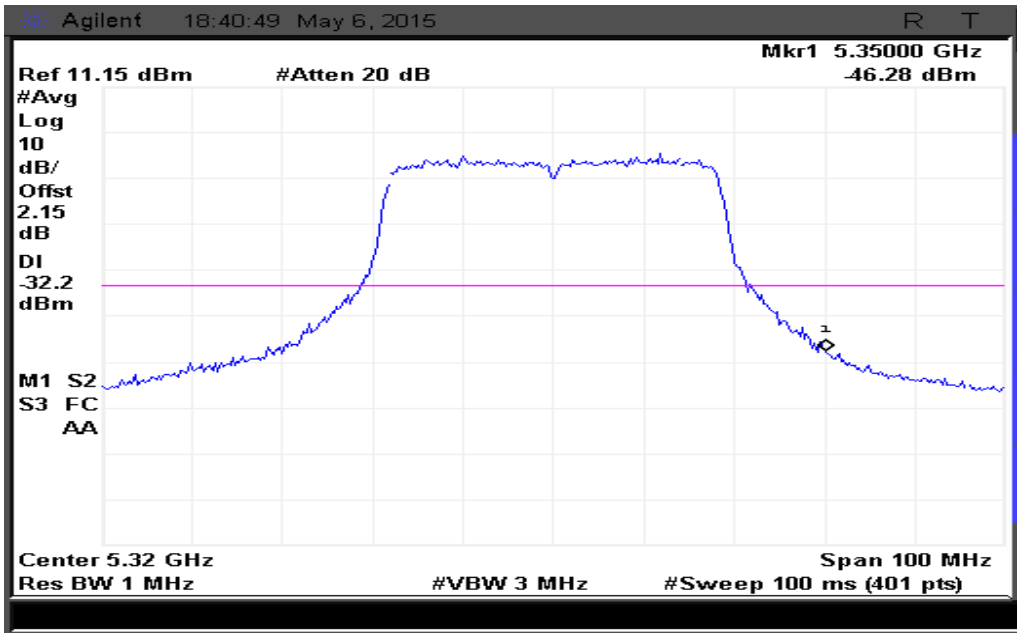

Figure 194: Band edge measured at Ch. 1-Avg

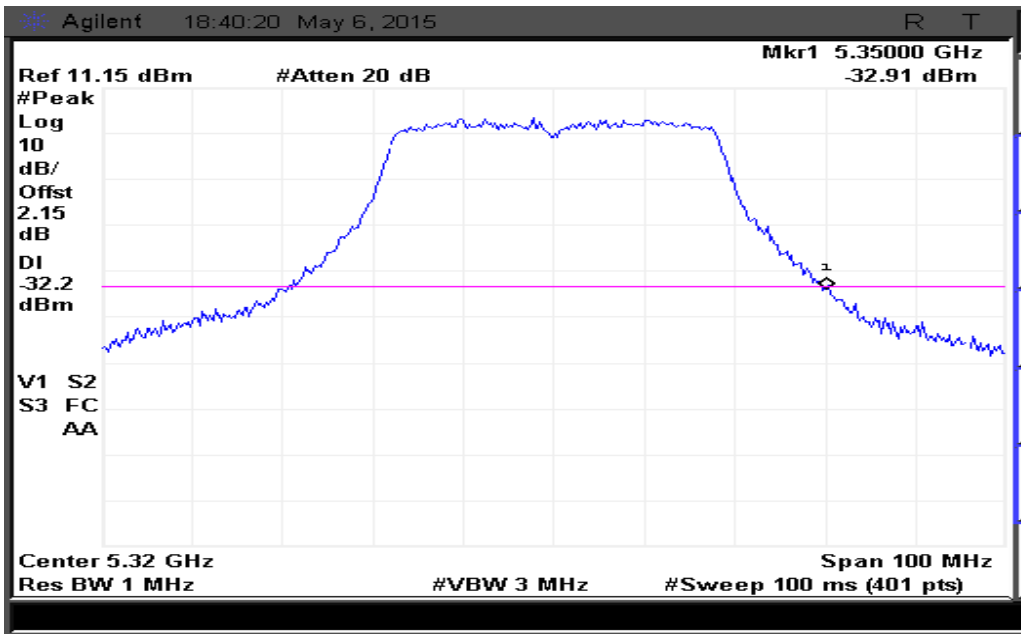

Figure 195: Band edge measured at Ch. 1-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.6.5.3 10MHz Modulation BW-Low channel_5265 MHz

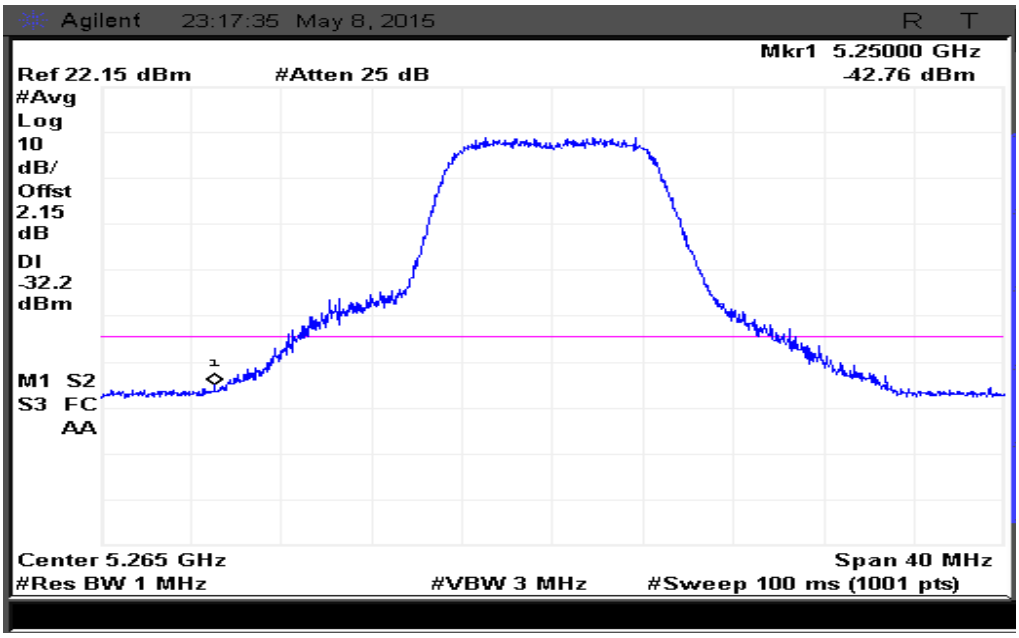

Figure 196: Band edge measured at Ch. 0-Avg

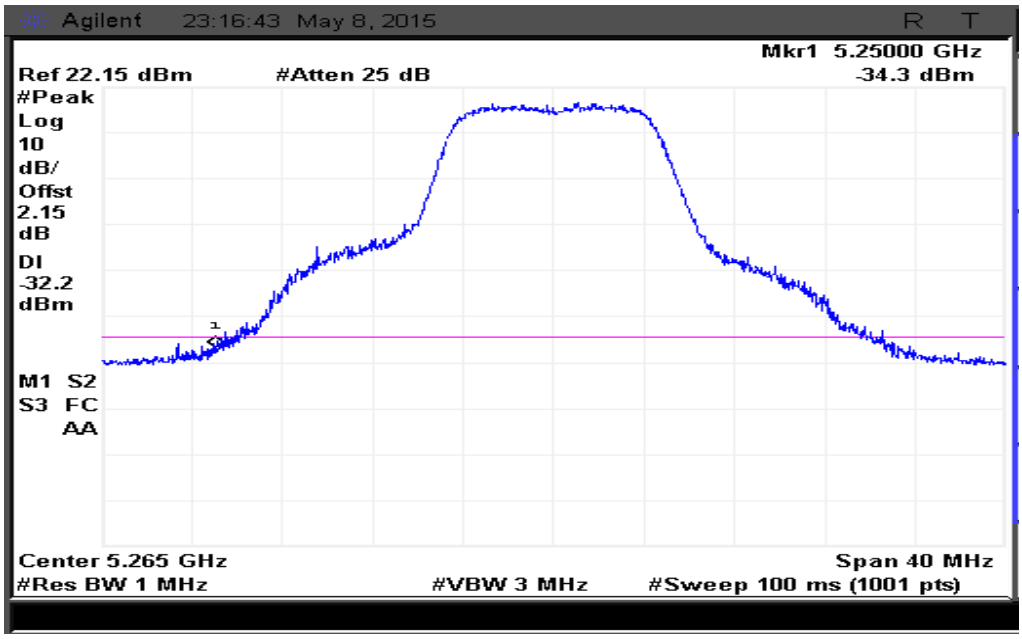

Figure 197: Band edge measured at Ch. 0-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

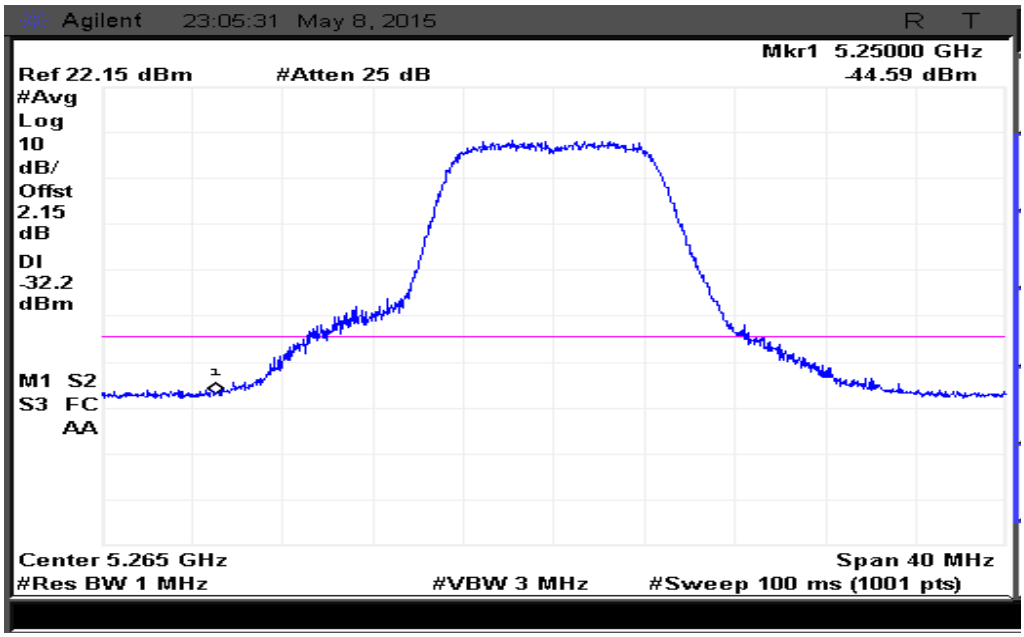

Figure 198: Band edge measured at Ch. 1-Avg

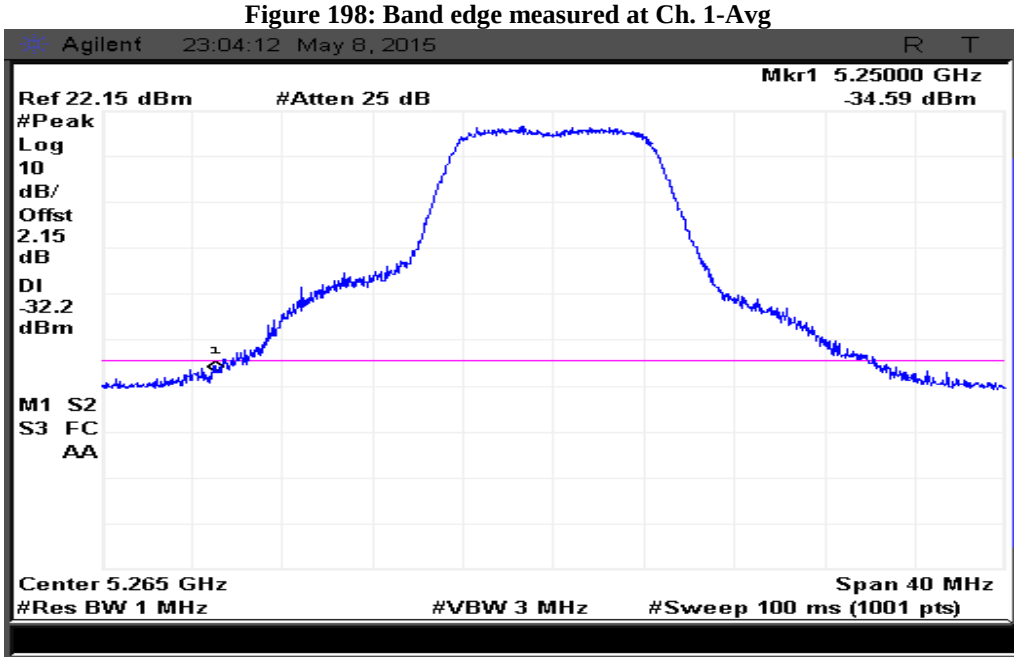

Figure 199: Band edge measured at Ch. 1-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.6.5.4 10MHz Modulation BW-High channel_5335 MHz

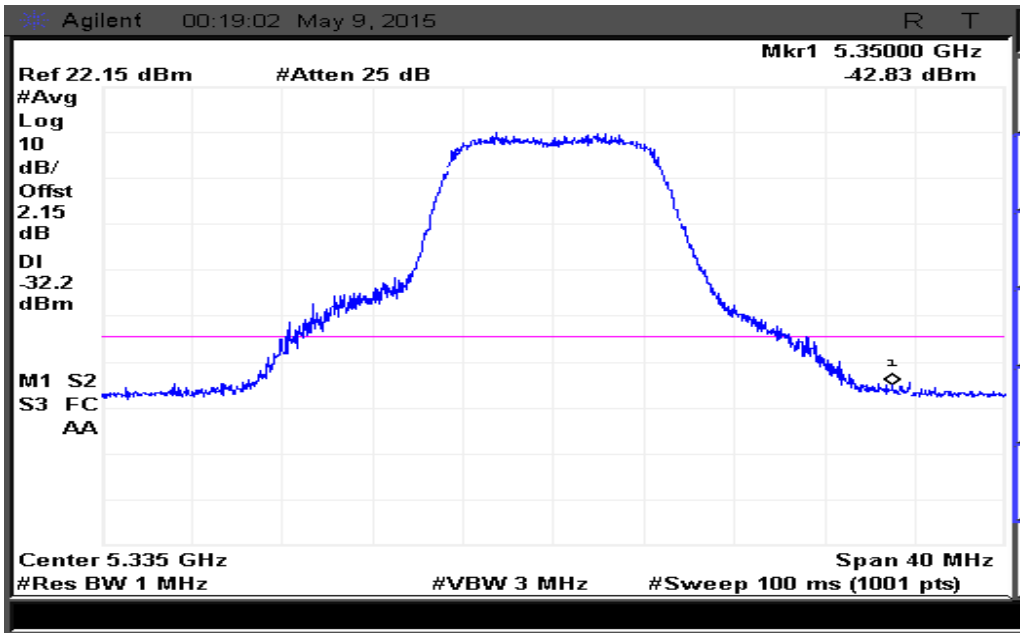

Figure 200: Band edge measured at Ch. 0-Avg

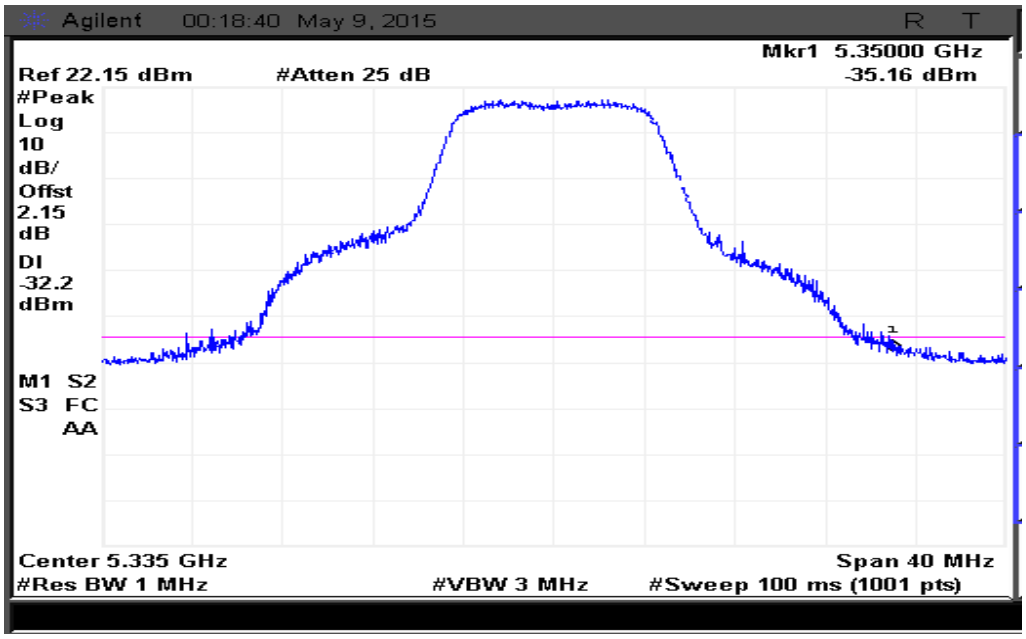

Figure 201: Band edge measured at Ch. 0-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

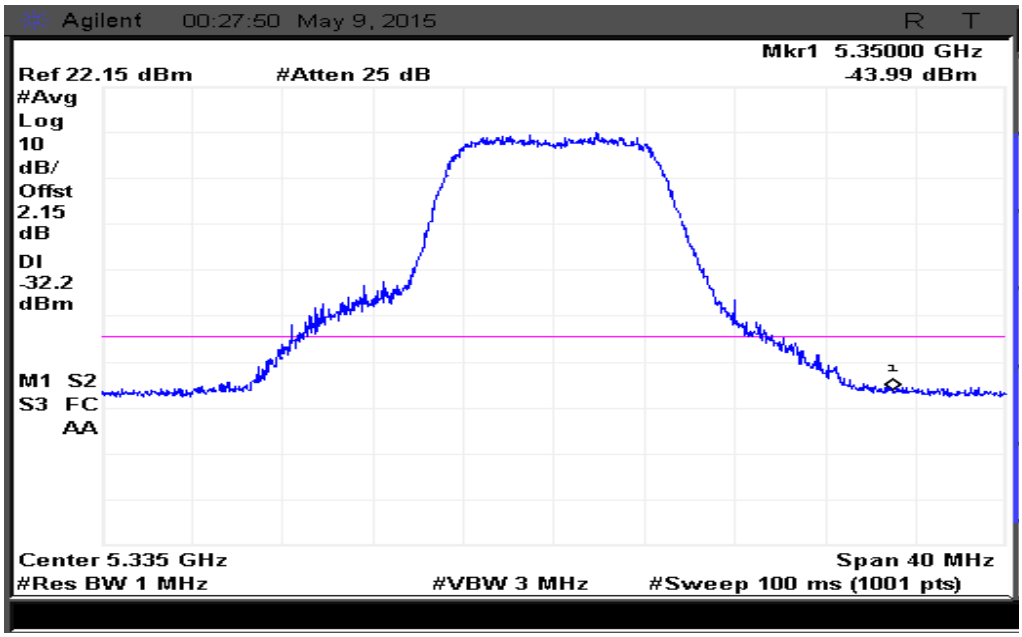

Figure 202: Band edge measured at Ch. 1-Avg

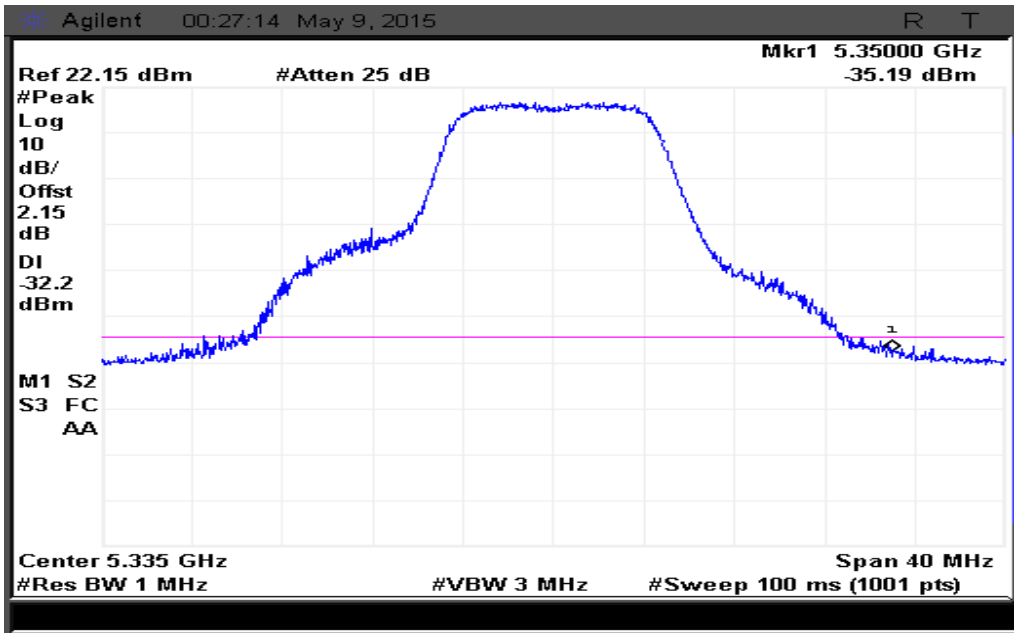

Figure 203: Band edge measured at Ch. 1-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.6.6 RESULT (SUPPORTING GRAPHS / DATA) FOR 17DBI ANTENNA CONDITION

5.3.6.6.1 40MHZ MODULATION BW-LOW CHANNEL_5280 MHZ

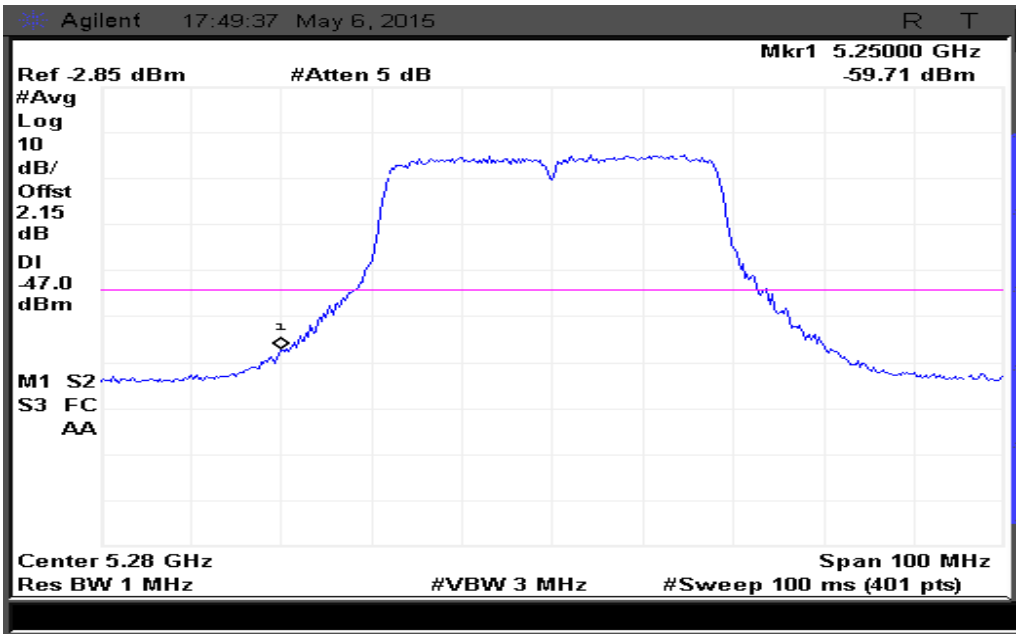

Figure 204: Band edge measured at Ch. 0-Avg

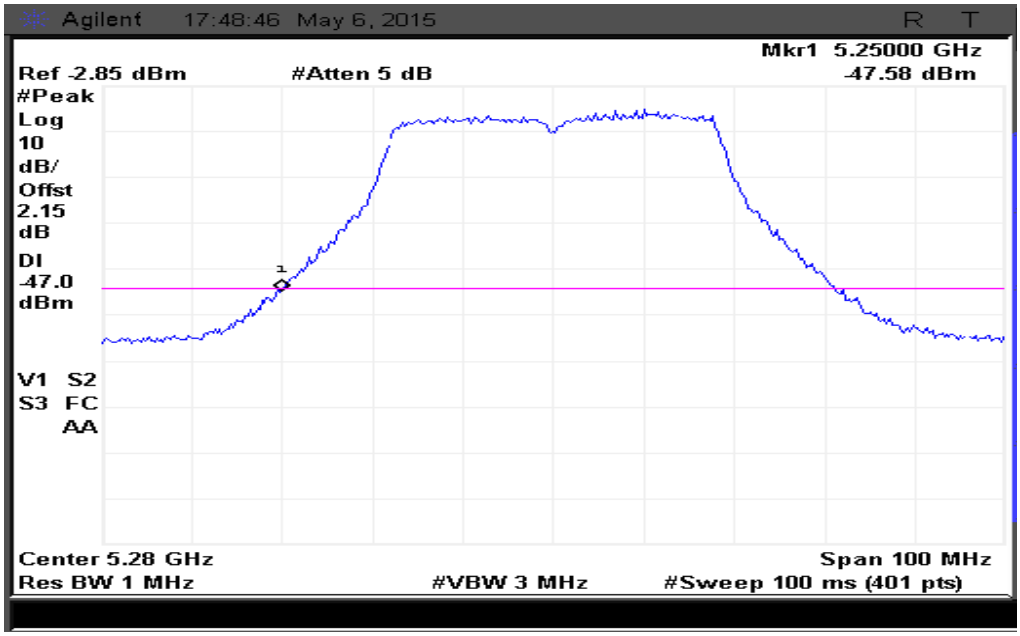

Figure 205: Band edge measured at Ch. 0-Peak.

This report should always be reproduced in full. Any extracts of this report is invalid.

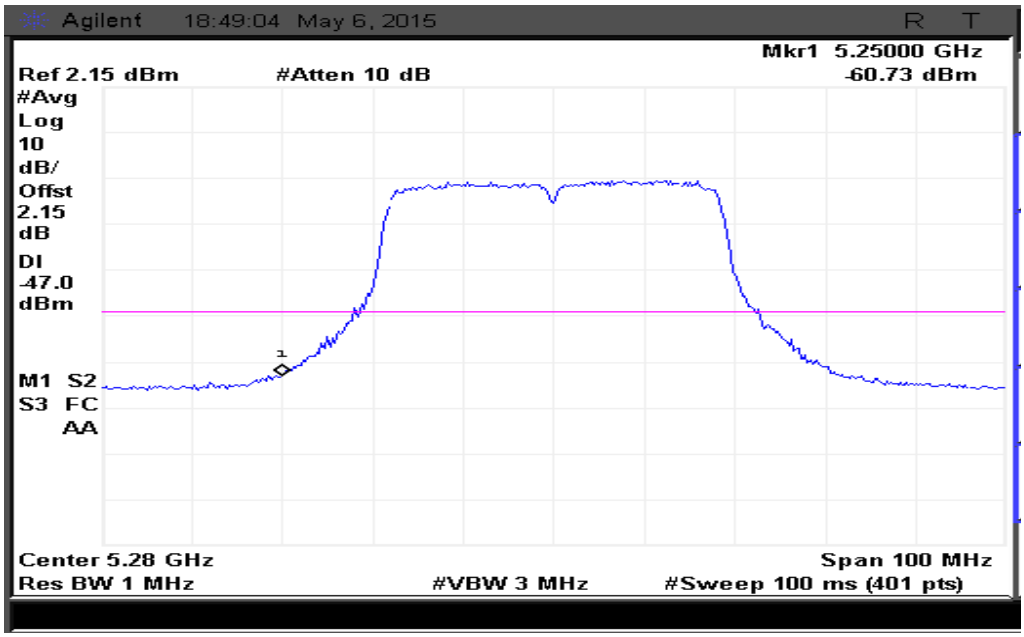

Figure 206: Band edge measured at Ch. 1-Avg

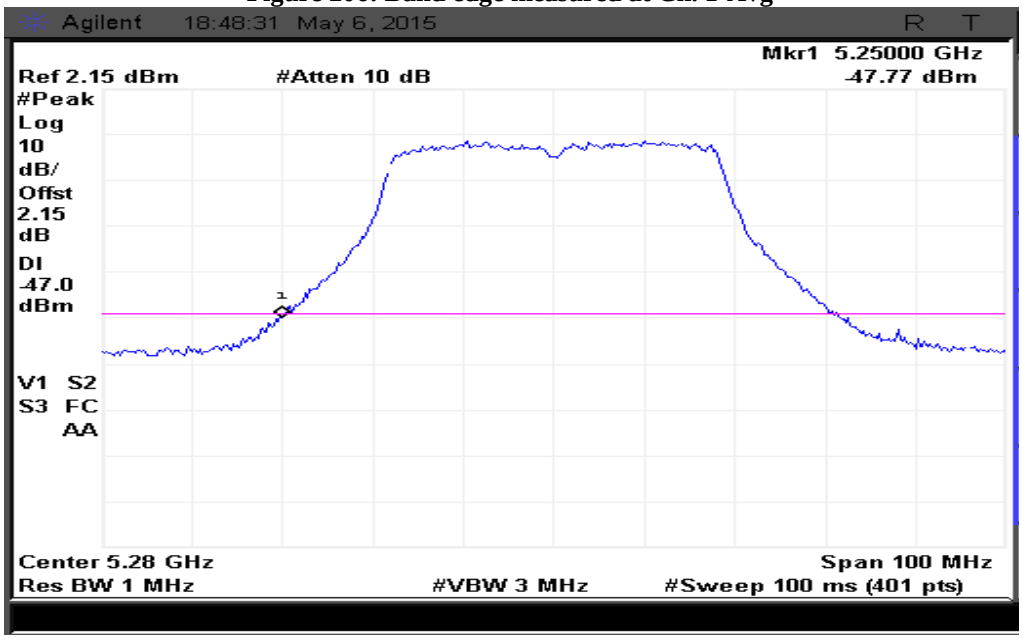

Figure 207: Band edge measured at Ch. 1-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.6.6.2 40MHz Modulation BW-High channel_5320MHz

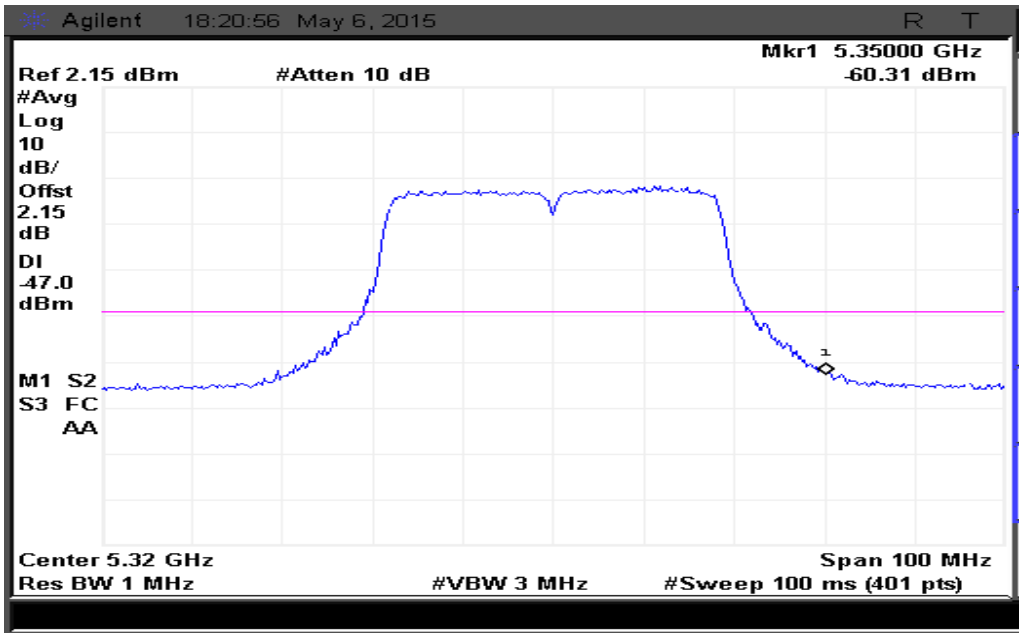

Figure 208: Band edge measured at Ch. 0-Avg

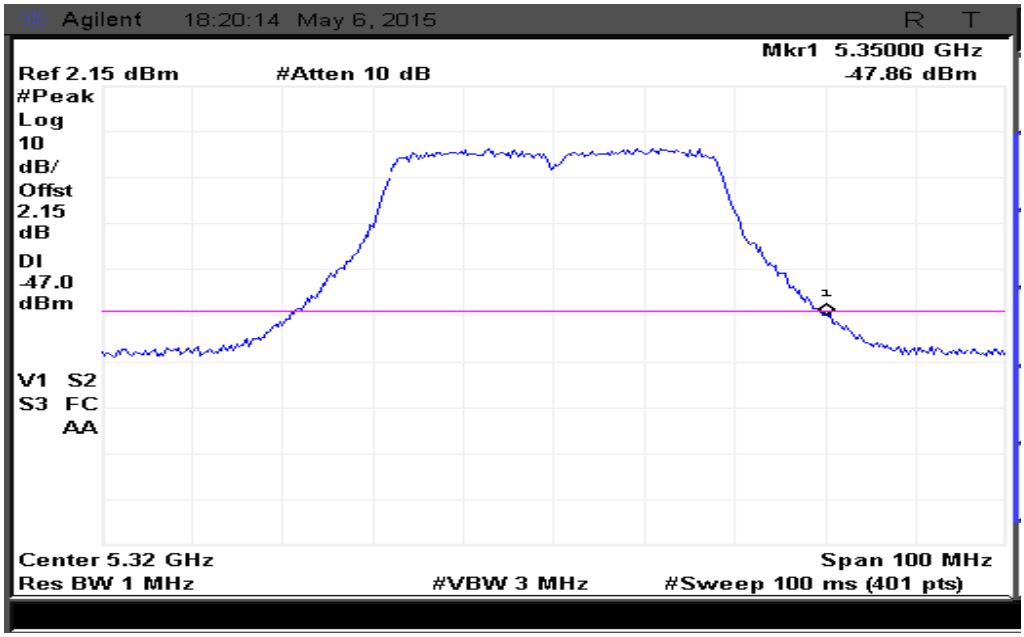

Figure 209: Band edge measured at Ch. 0-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

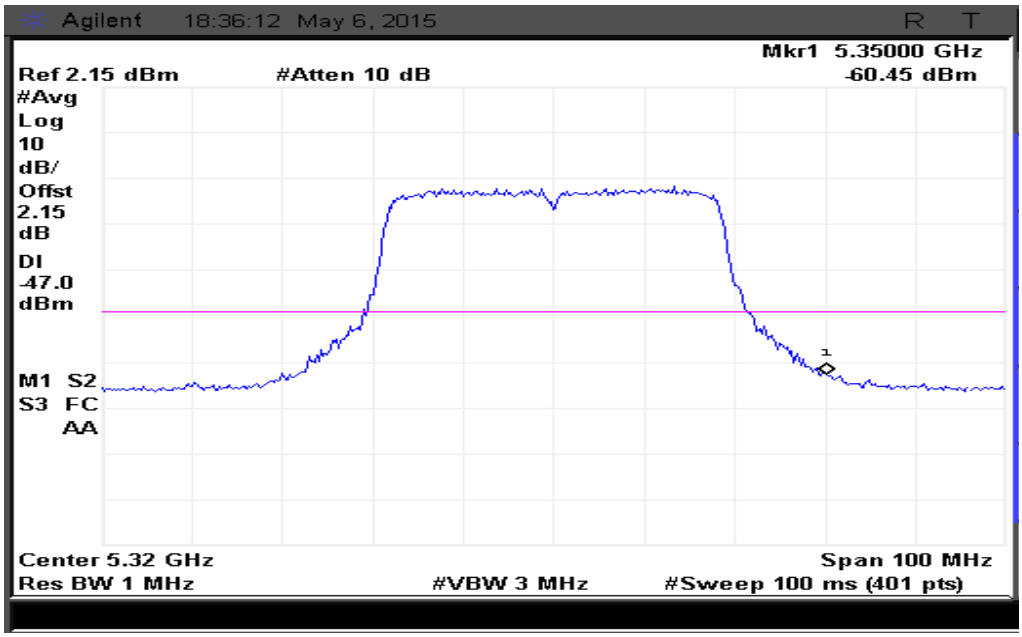

Figure 210: Band edge measured at Ch. 1-Avg

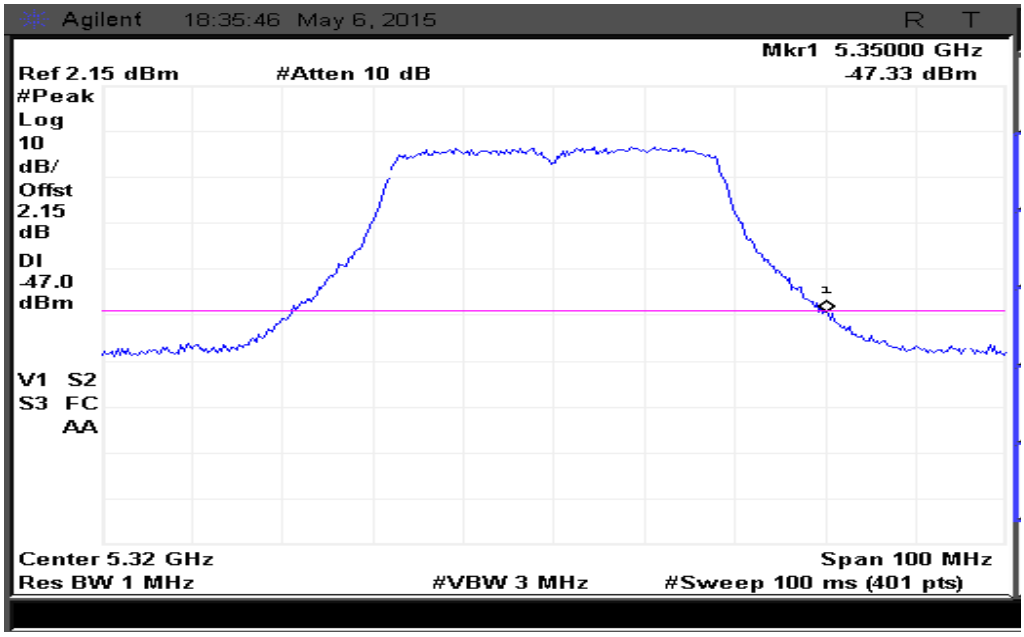

Figure 211: Band edge measured at Ch. 1-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.6.6.3 10MHz Modulation BW-Low channel_5265 MHz

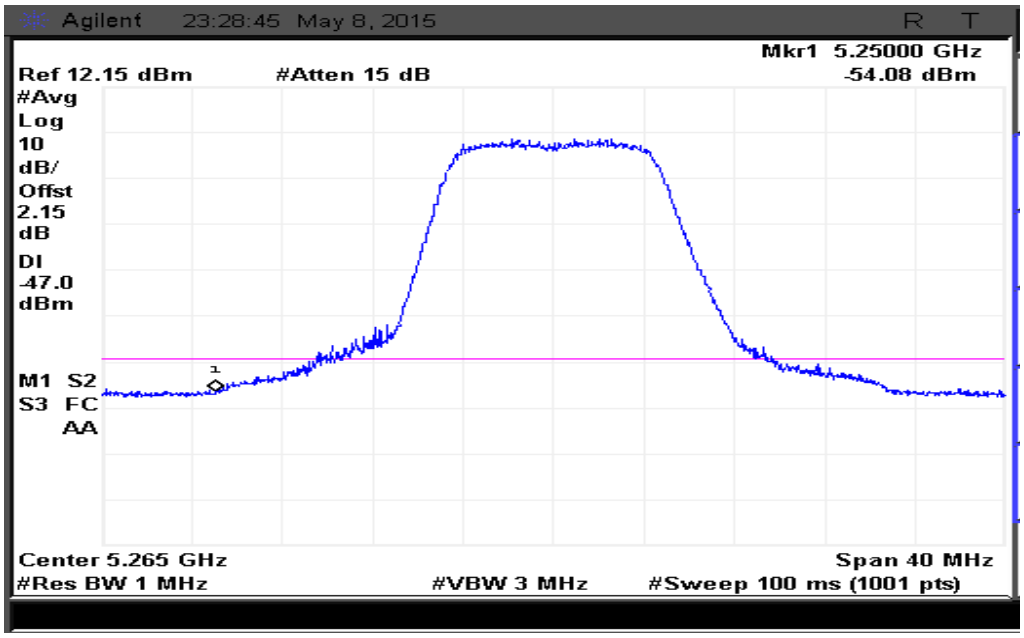

Figure 212: Band edge measured at Ch. 0-Avg

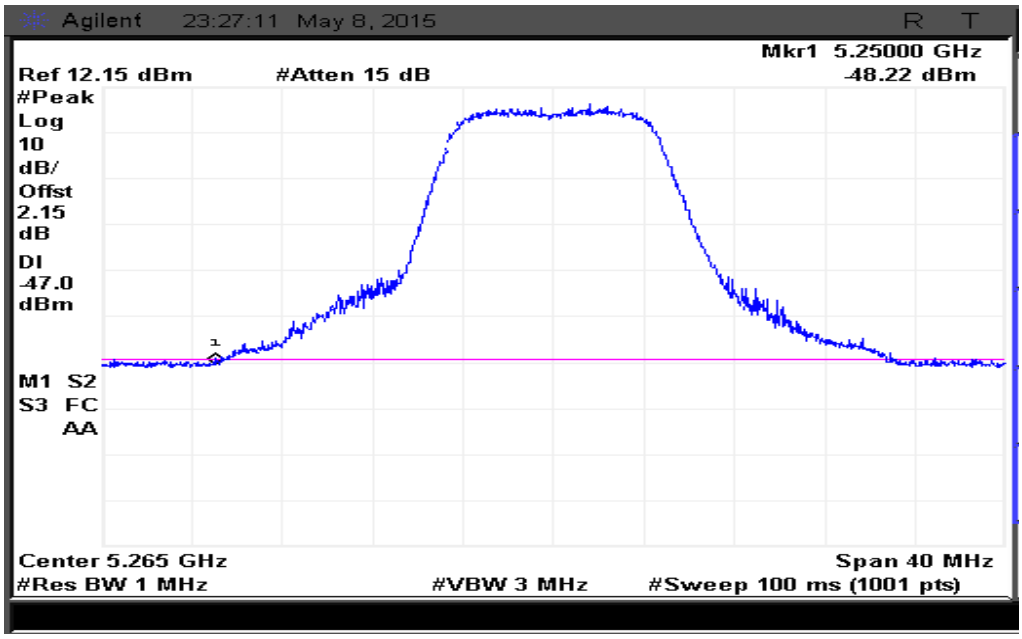

Figure 213: Band edge measured at Ch. 0-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

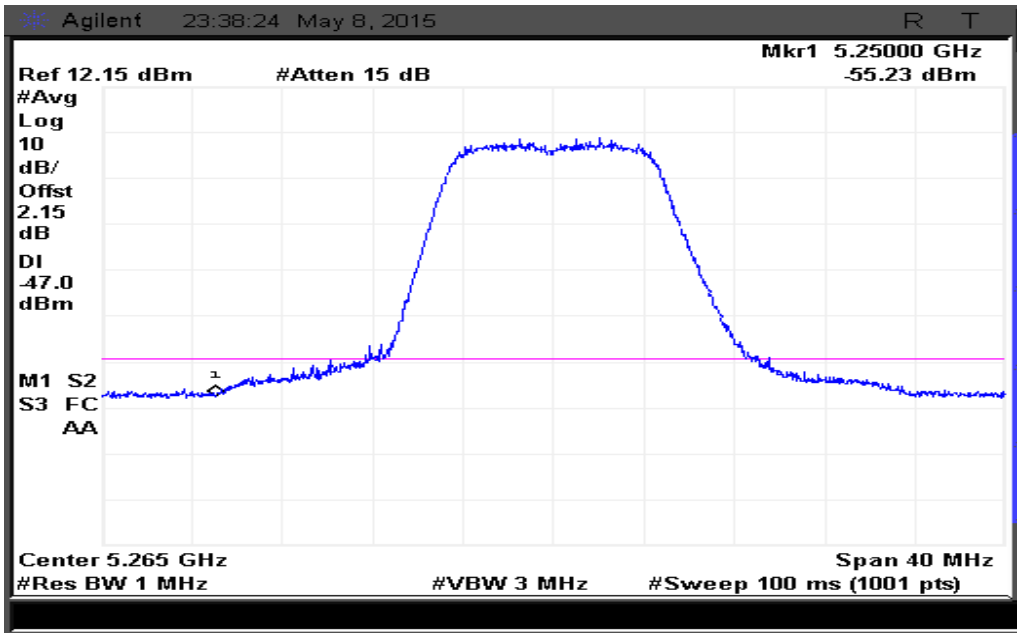

Figure 214: Band edge measured at Ch. 1-Avg

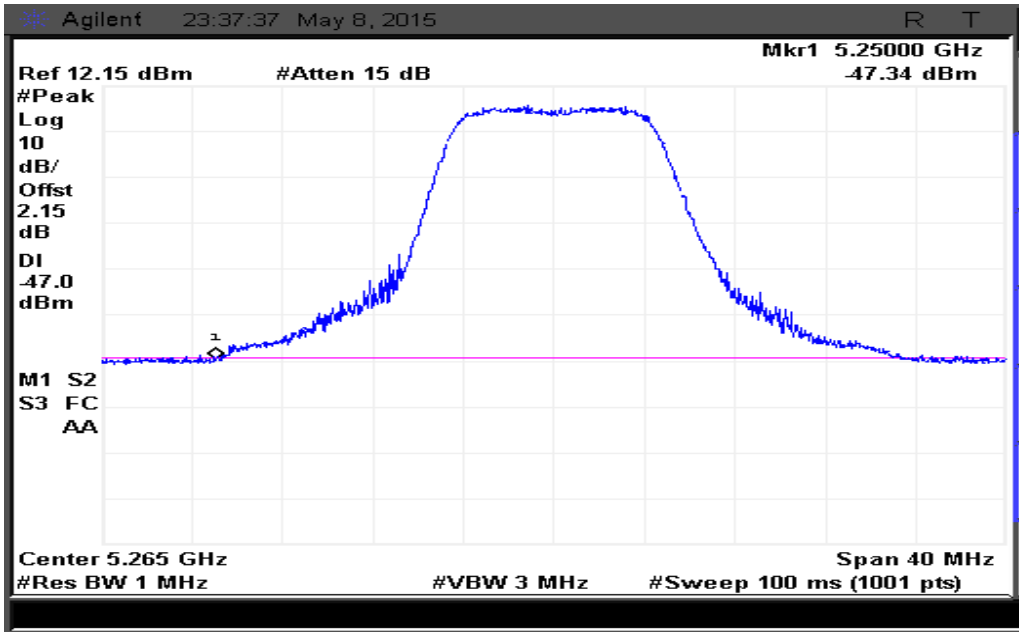

Figure 215: Band edge measured at Ch. 1-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.6.6.4 10MHz Modulation BW-High channel_5335 MHz

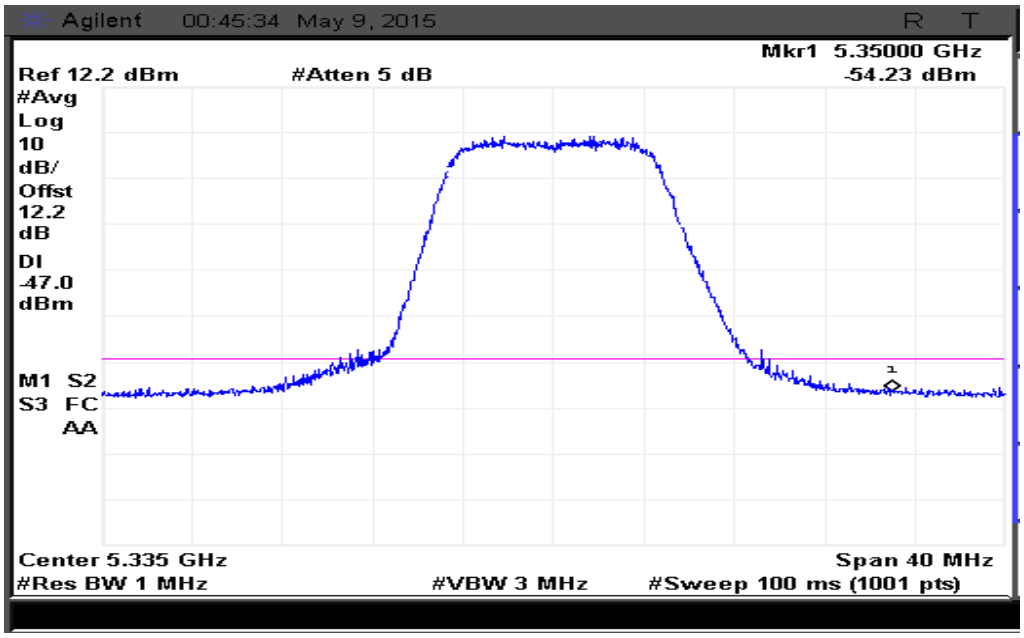

Figure 216: Band edge measured at Ch. 0-Avg

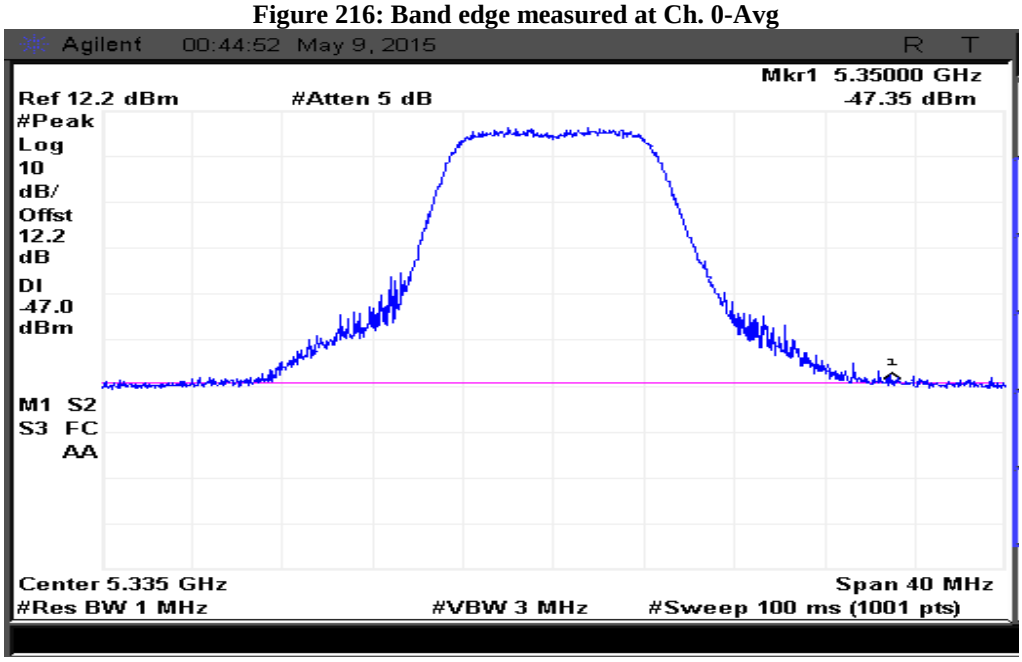

Figure 217: Band edge measured at Ch. 0-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

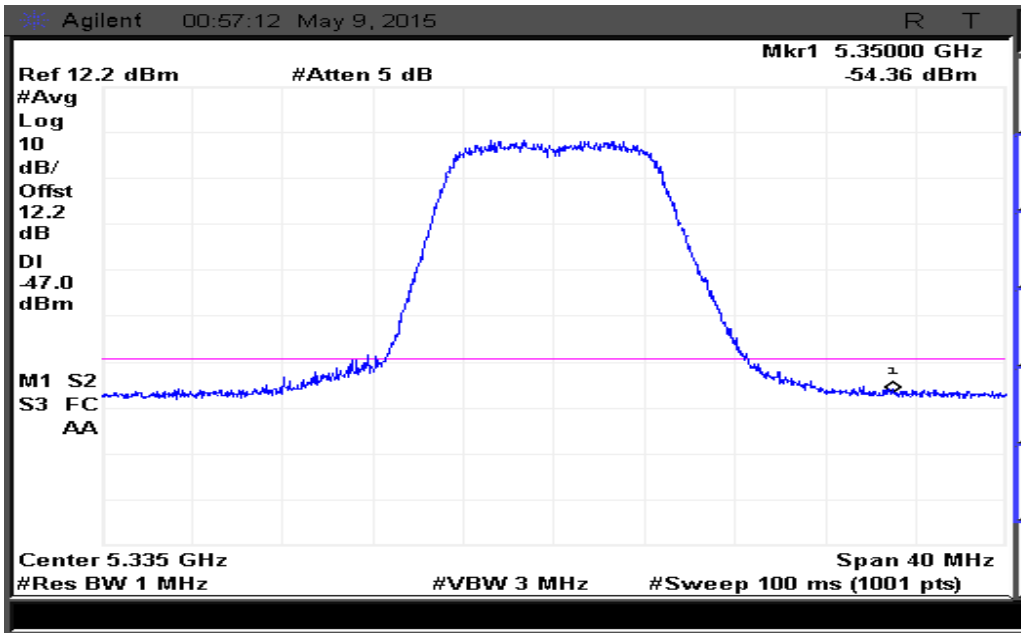

Figure 218: Band edge measured at Ch. 1-Avg

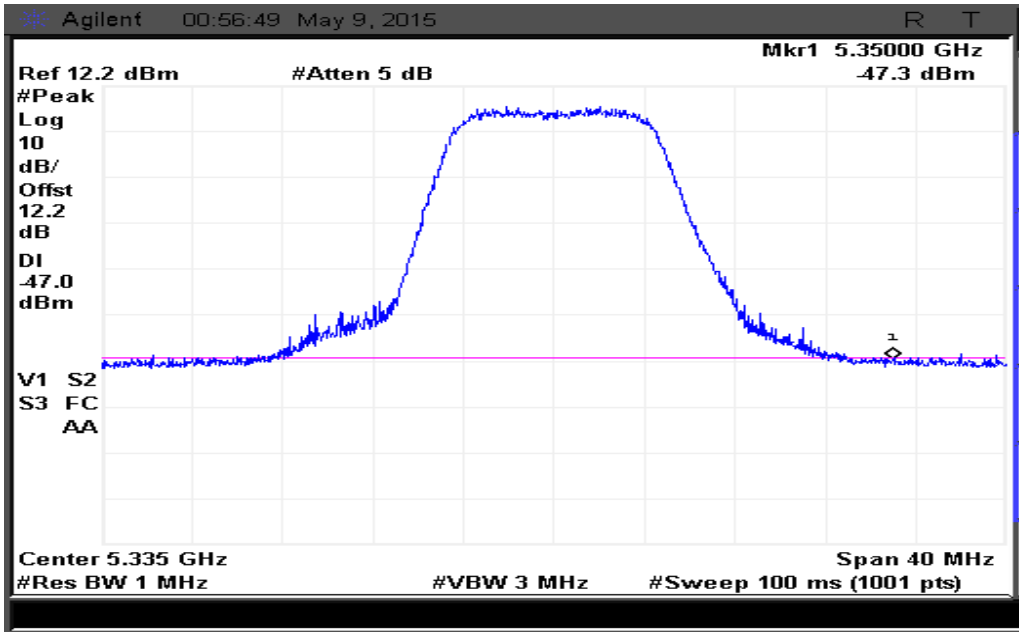

Figure 219: Band edge measured at Ch. 1-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.6.7 RESULT (SUPPORTING GRAPHS / DATA) FOR 24DBI DIDH CONDITION

5.3.6.7.1 40MHZ MODULATION BW-LOW CHANNEL_5280 MHZ

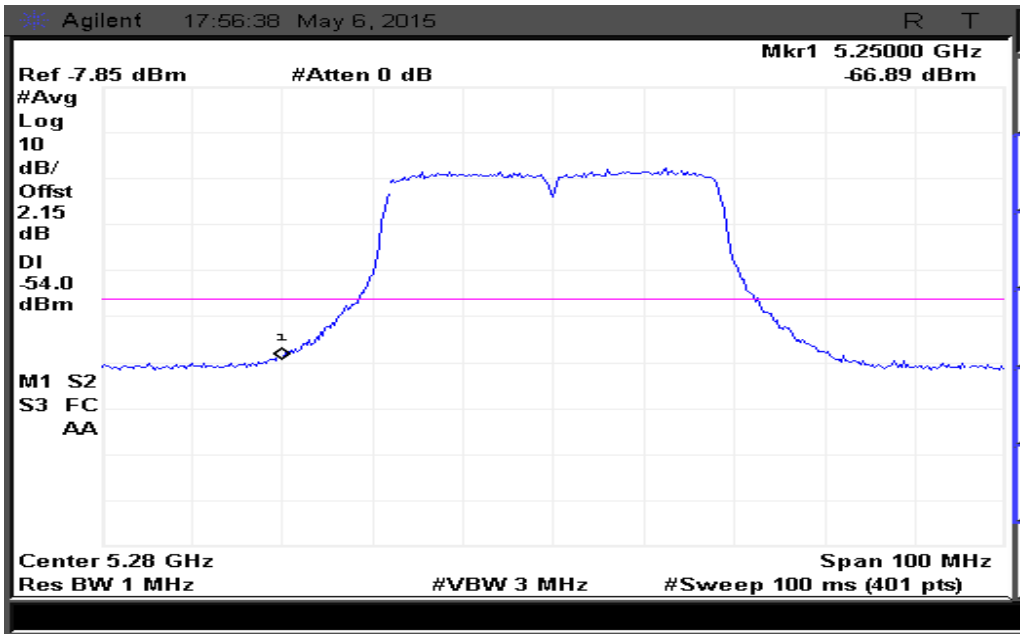

Figure 220: Band edge measured at Ch. 0-Avg

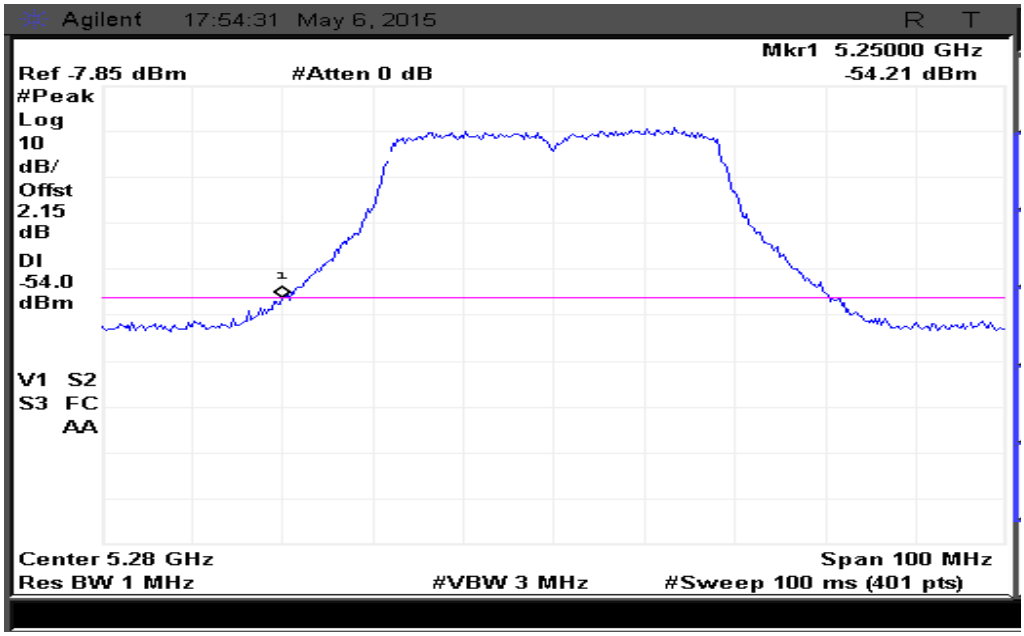

Figure 221: Band edge measured at Ch. 0-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

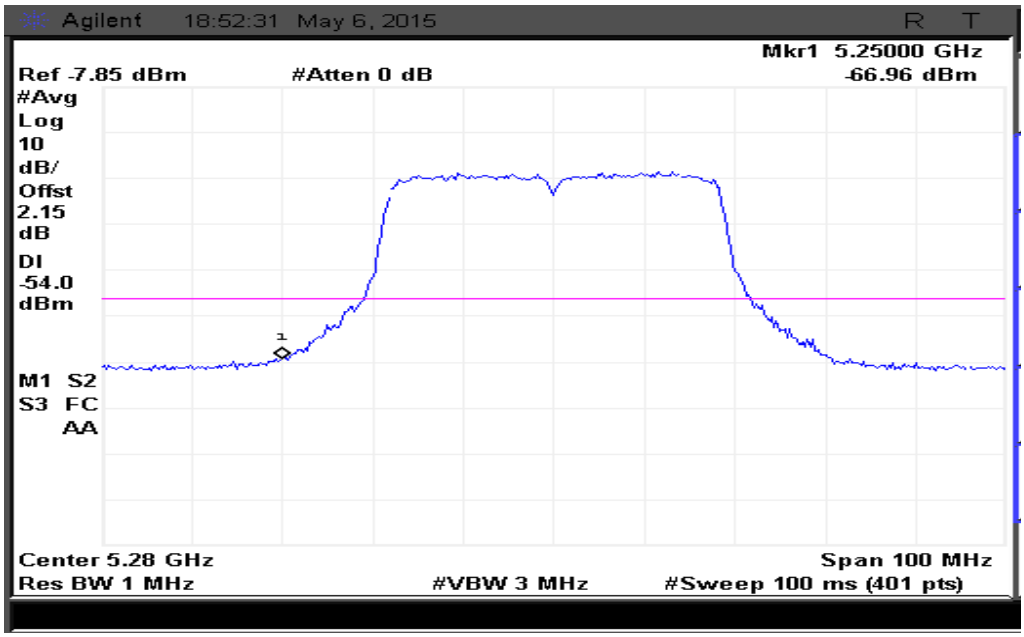

Figure 222: Band edge measured at Ch. 1-Avg

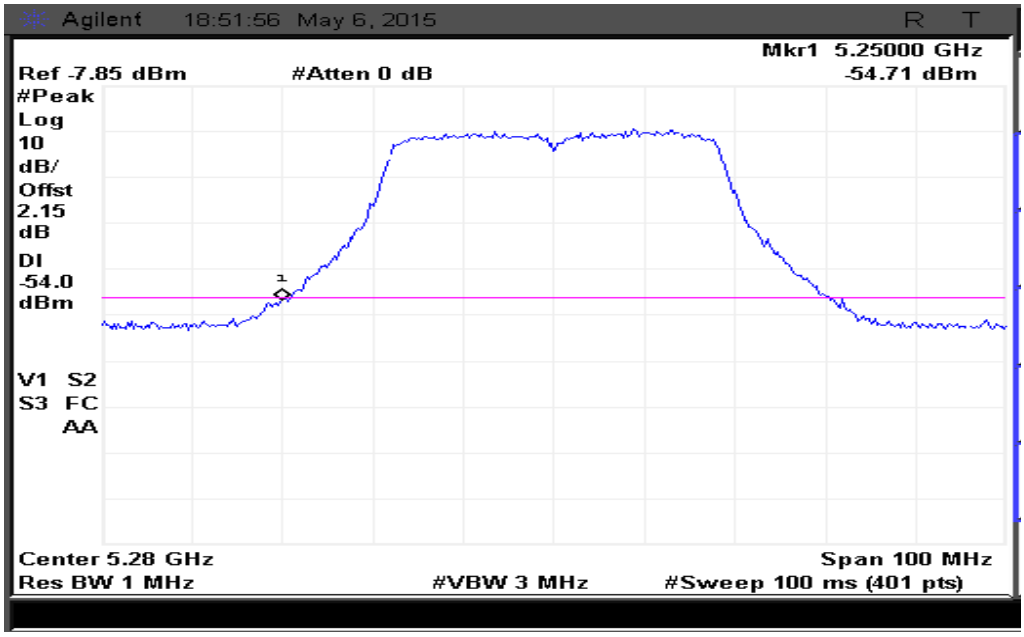

Figure 223: Band edge measured at Ch. 1-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.6.7.2 40MHz Modulation BW-High channel_5320MHz

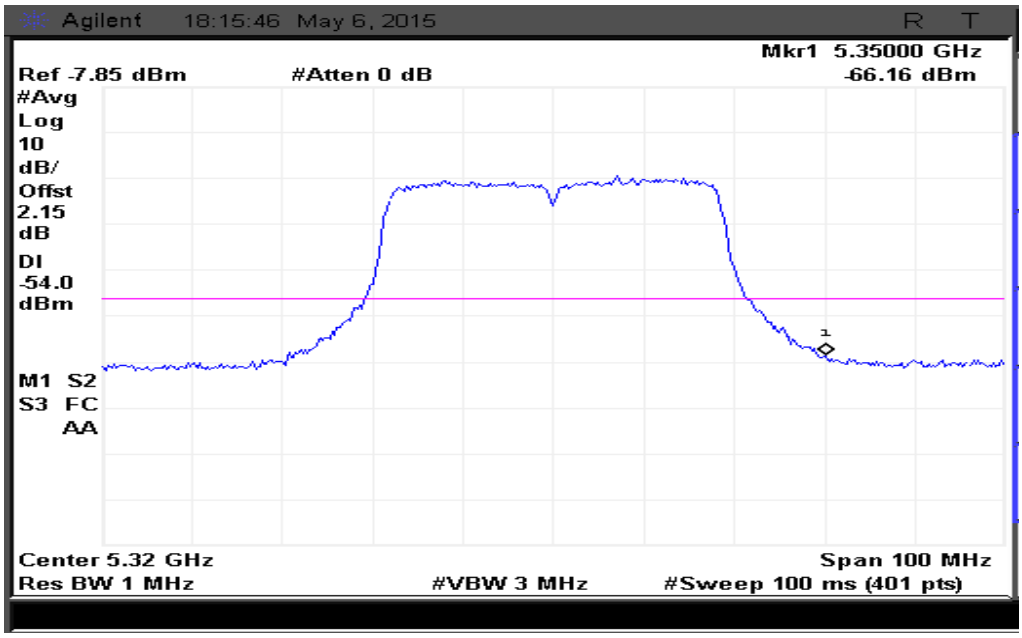

Figure 224: Band edge measured at Ch. 0-Avg

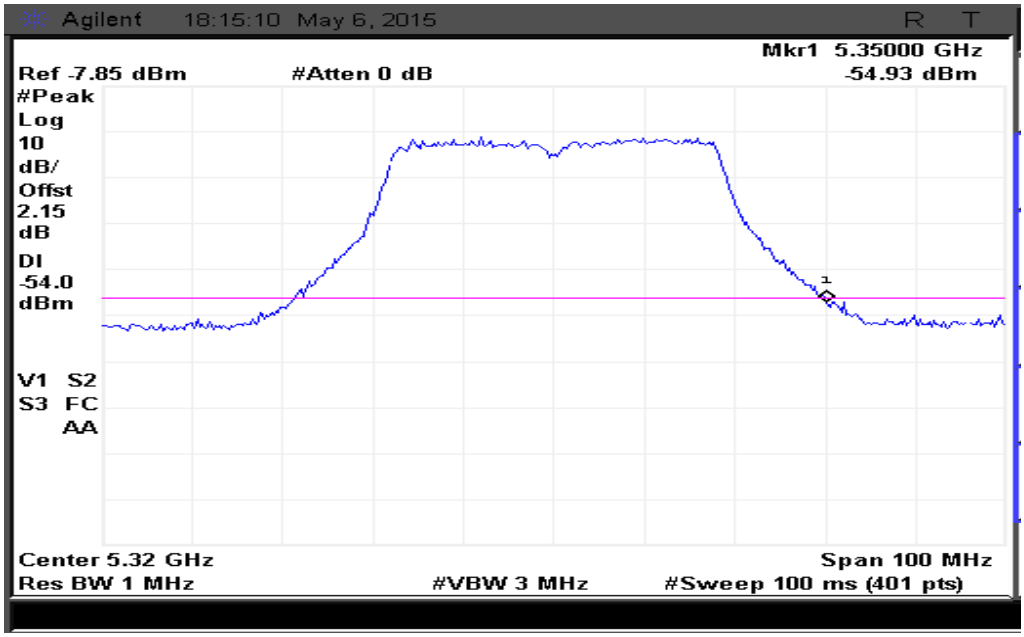

Figure 225: Band edge measured at Ch. 0-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

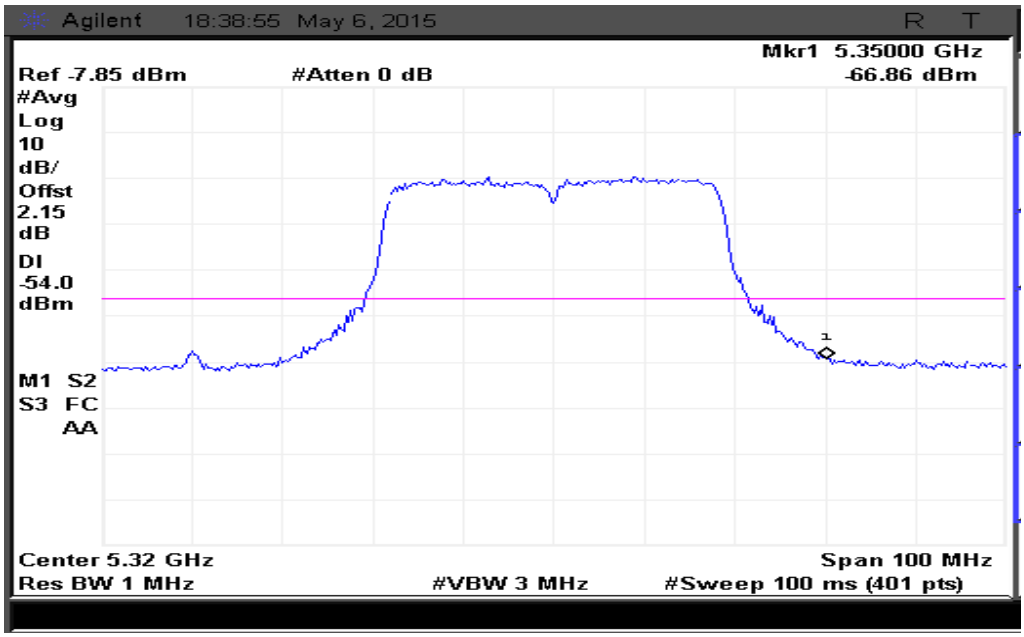

Figure 226: Band edge measured at Ch. 1-Avg

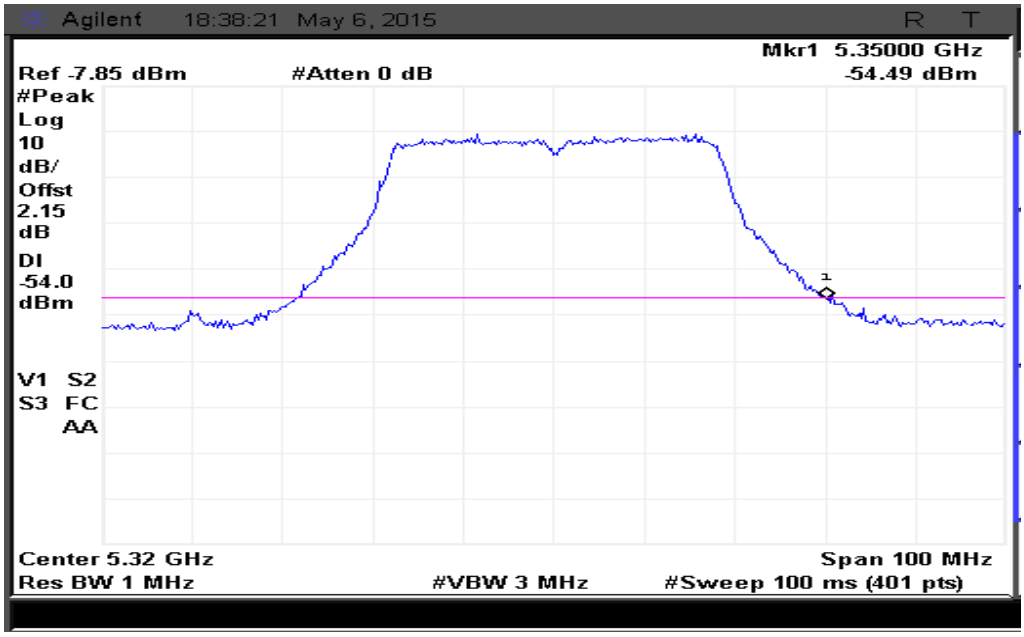

Figure 227: Band edge measured at Ch. 1-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.6.7.3 10MHz Modulation BW-Low channel_5265 MHz

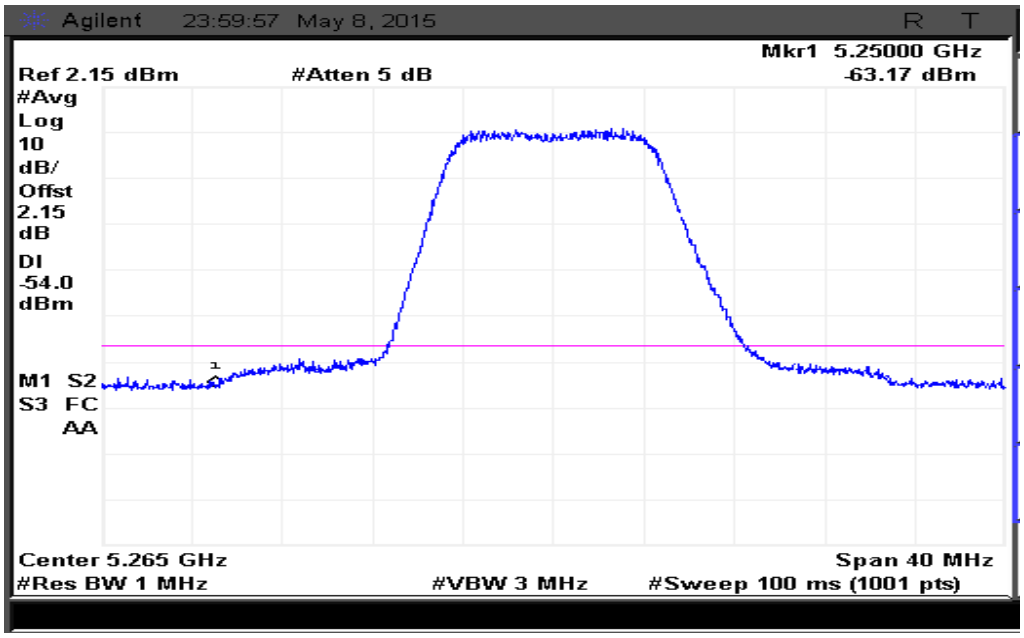

Figure 228: Band edge measured at Ch. 0-Avg

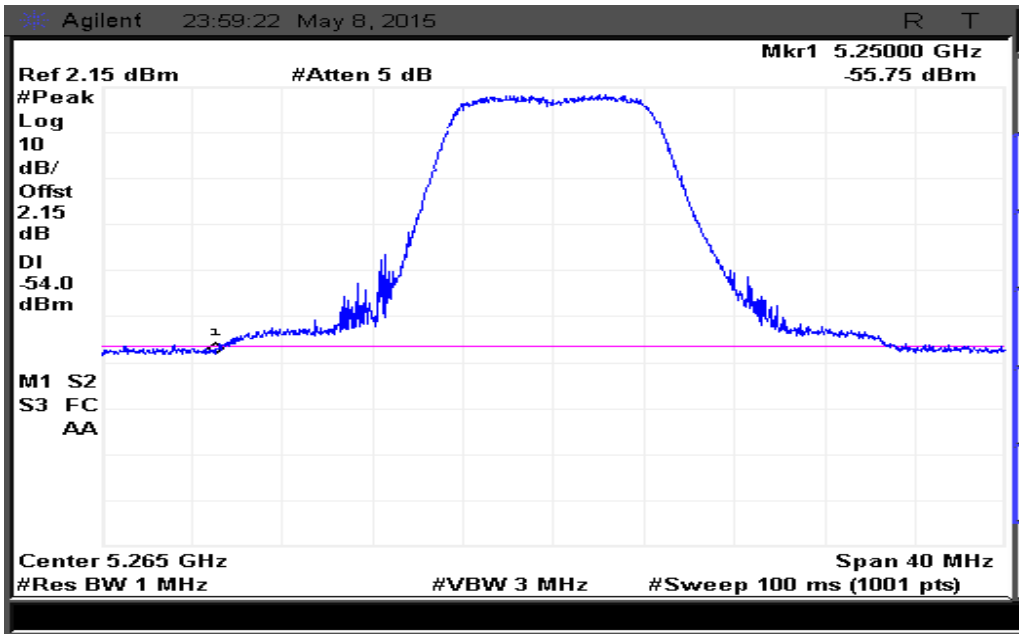

Figure 229: Band edge measured at Ch. 0-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

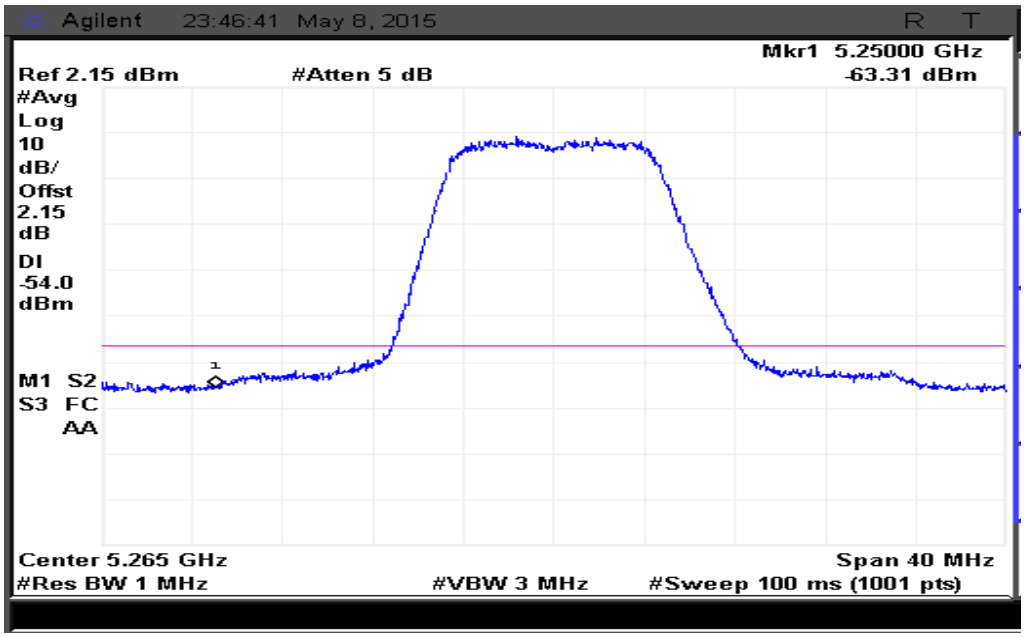

Figure 230: Band edge measured at Ch. 1-Avg

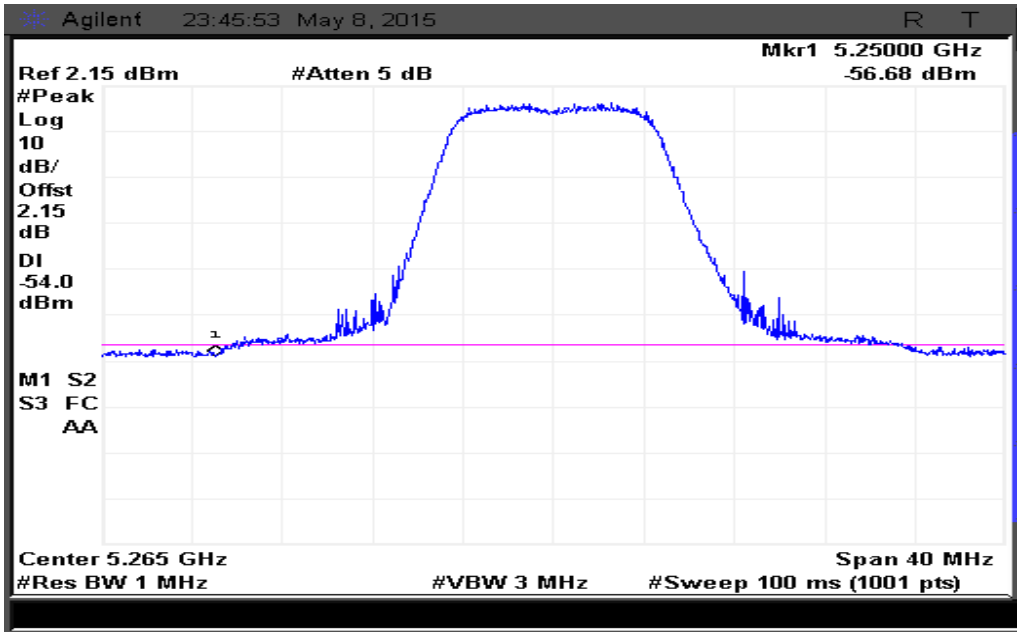

Figure 231: Band edge measured at Ch. 1-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

5.3.6.7.4 10MHz Modulation BW-High channel_5335 MHz

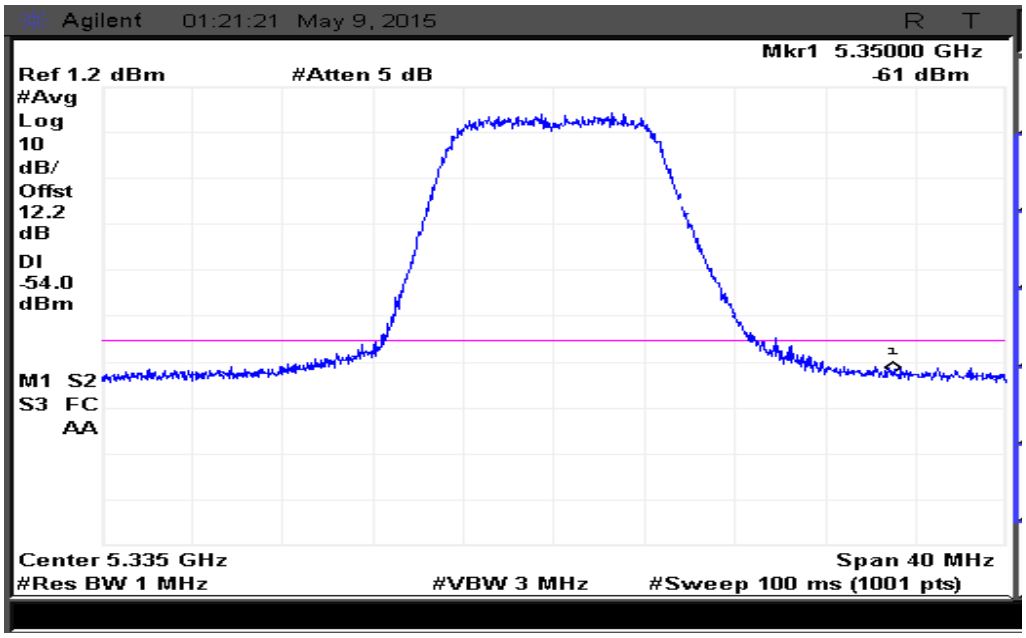

Figure 232: Band edge measured at Ch. 0-Avg

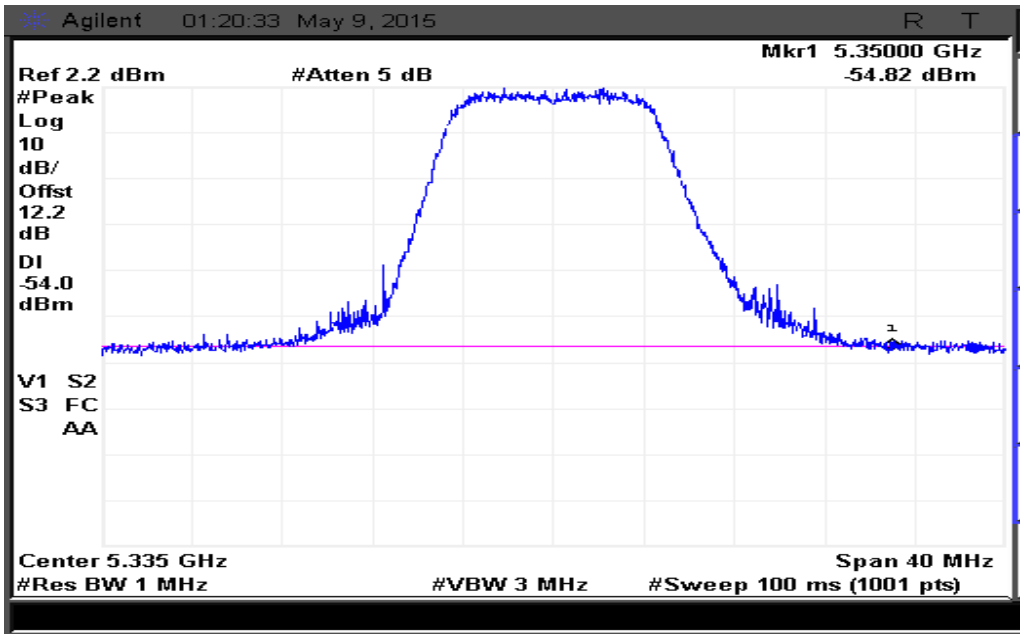

Figure 233: Band edge measured at Ch. 0-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

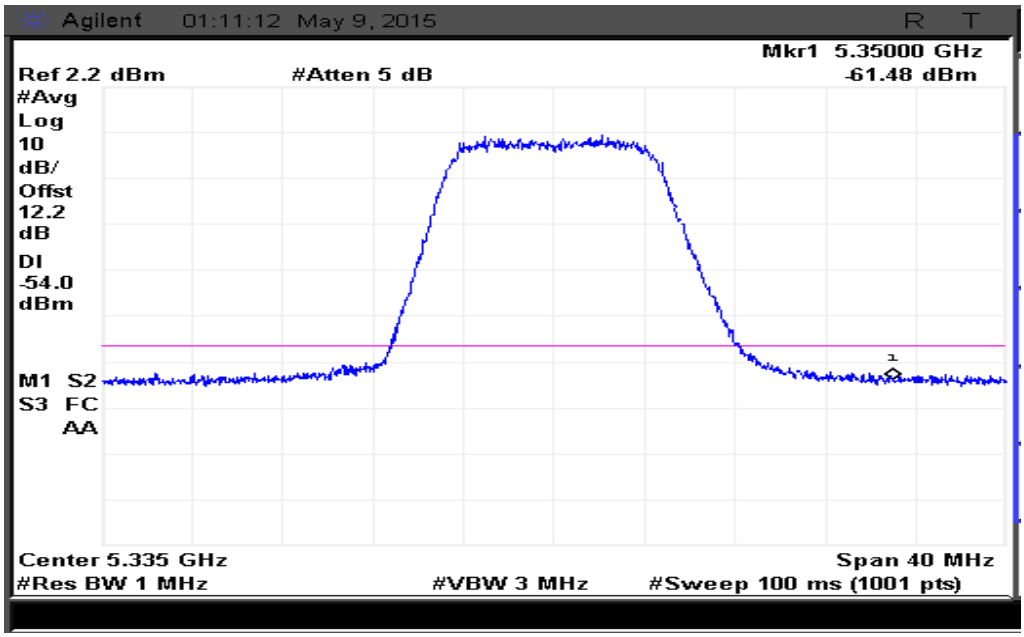

Figure 234: Band edge measured at Ch. 1-Avg

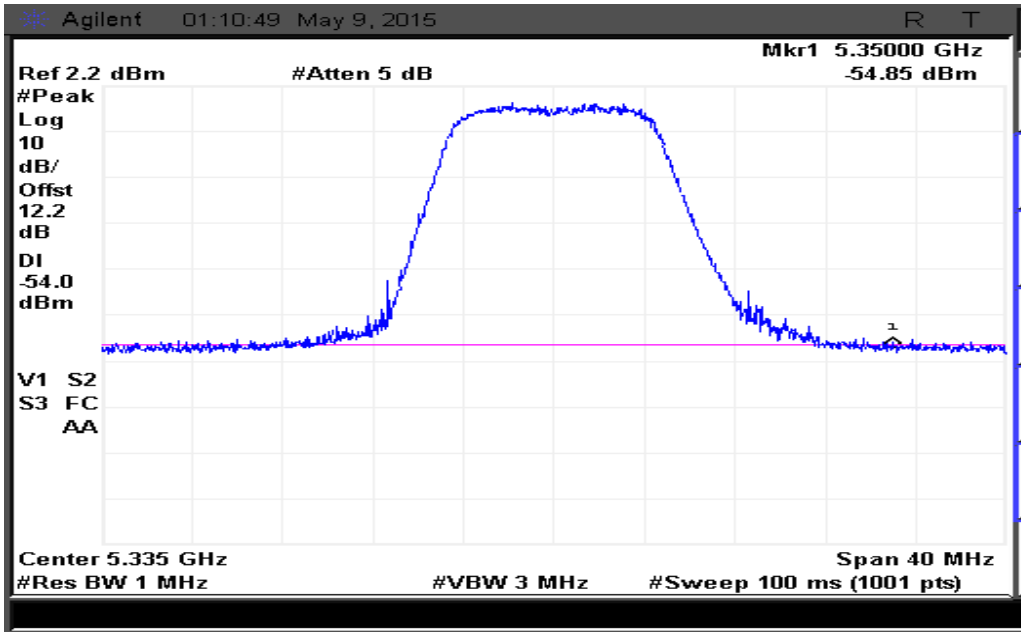

Figure 235: Band edge measured at Ch. 1-Peak

This report should always be reproduced in full. Any extracts of this report is invalid.

APPENDIX I – ACRONYMS

dBµV	Decibel micro Volts
EUT	Equipment Under Test
FCC	Federal Communications Commission
GHz	Giga Hertz
kHz	Kilo Hertz
LISN	Line Impedance Stabilization Network
MHz	Mega Hertz
QP	Quasi Peak

END OF REPORT

This report should always be reproduced in full. Any extracts of this report is invalid.