

EMC TEST REPORT	
TEST REPORT NUMBER	DBN 1604TEL539-D
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MANUFACTURER	Cambium Networks
PRODUCT NAME	ePMP2000
PRODUCT MODEL	C050900P031A
CONDITION OF EUT WHEN RECEIVED	GOOD and in proper working condition
ISSUED TO	Cambium Networks, 3800 Golf Road, Suite 360, Rolling Meadows, IL, USA 60008
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AMENDMENT HISTORY

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TABLE OF CONTENTS

1	TEST REPORT SUMMARY	12
2	GENERAL INFORMATION	13
2.1	ACCREDITATION DETAILS	13
2.2	MEASUREMENT UNCERTAINTY	13
3	INSTRUMENTATION AND CALIBRATION	14
3.1	TEST AND MEASURING EQUIPMENT	14
3.2	EQUIPMENTS USED	14
4	PRODUCT INFORMATION	15
4.1	DESCRIPTION OF THE PRODUCT	15
4.2	SOFTWARE AND FIRMWARE DETAILS	15
5	TEST DETAILS	16
5.1	PRODUCT AND TEST SETUP	16
5.1.1	PRODUCT CONFIGURATION	16
5.1.2	TEST SETUP DETAILS	17
5.1.3	ACCESSORIES	18
5.2	APPLICABLE TESTS	18
5.3	TEST RESULT	19
5.3.1	DUTY CYCLE (X) AND TRANSMISSION DURATION (1)	19
5.3.2	6 DB BANDWIDTH MEASUREMENT	22
5.3.3	MAXIMUM CONDUCTED OUTPUT POWER	37
5.3.4	POWER SPECTRAL DENSITY	47
5.3.5	OPERATING BAND EDGE MEASUREMENTS	61
5.3.6	RADIO FREQUENCY POWER IN ANY 100 KHZ BANDWIDTH OUTSIDE THE INTENTIONAL BAND	74
5.3.7	TRANSMITTER UNWANTED EMISSIONS (CONDUCTED)	99
	ANNEXURE I: EUT SOFTWARE SETTINGS	213
	ANNEXURE II: ACRONYMS	217

LIST OF FIGURES

Figure 1 Block diagram of the EUT test setup	17
Figure 2 Typical test setup for Conducted RF Test	19
Figure 3 Measured ON time	20
Figure 4 Measured Transmission Period (T)	20
Figure 5 Typical test setup for Conducted RF Test	22
Figure 6 6dB Bandwidth measured at Ch.0	23
Figure 7 6dB Bandwidth measured at Ch.1	24
Figure 8 6 dB Bandwidth measured at Ch.0	24
Figure 9 6 dB Bandwidth measured at Ch.1	25
Figure 10 6 dB Bandwidth measured at Ch.0	25
Figure 11 6 dB Bandwidth measured at Ch.1	26
Figure 12 6 dB Bandwidth measured at Ch.0	26
Figure 13 6 dB Bandwidth measured at Ch.1	27
Figure 14 6 dB Bandwidth measured at Ch.0	27
Figure 15 6 dB Bandwidth measured at Ch.1	28
Figure 16 6 dB Bandwidth measured at Ch.0	28
Figure 17 6 dB Bandwidth measured at Ch.1	29
Figure 18 6 dB Bandwidth measured at Ch.0	29
Figure 19 6 dB Bandwidth measured at Ch.1	30
Figure 20 6 dB Bandwidth measured at Ch.0	30
Figure 21 6 dB Bandwidth measured at Ch.1	31
Figure 22 6 dB Bandwidth measured at Ch.0	31
Figure 23 6 dB Bandwidth measured at Ch.1	32
Figure 24 6 dB Bandwidth measured at Ch.0	32
Figure 25 6 dB Bandwidth measured at Ch.1	33
Figure 26 6 dB Bandwidth measured at Ch.0	33
Figure 27 6 dB Bandwidth measured at Ch.1	34
Figure 28 6 dB Bandwidth measured at Ch.0	34
Figure 29 6 dB Bandwidth measured at Ch.1	35
Figure 30 Typical test setup for Conducted RF Test	37
Figure 31 Maximum Conducted Output power measured at Ch.0 & Ch.1	38
Figure 32 Maximum Conducted Output power measured at Ch.0 & Ch.1	39
Figure 33 Maximum Conducted Output power measured at Ch.0 & Ch.1	39
Figure 34 Maximum Conducted Output power measured at Ch.0 & Ch.1	40
Figure 35 Maximum Conducted Output power measured at Ch.0 & Ch.1	40
Figure 36 Maximum Conducted Output power measured at Ch.0 & Ch.1	41
Figure 37 Maximum Conducted Output power measured at Ch.0 & Ch.1	41
Figure 38 Maximum Conducted Output power measured at Ch.0 & Ch.1	42
Figure 39 Maximum Conducted Output power measured at Ch.0 & Ch.1	42
Figure 40 Maximum Conducted Output power measured at Ch.0 & Ch.1	43
Figure 41 Maximum Conducted Output power measured at Ch.0 & Ch.1	43
Figure 42 Maximum Conducted Output power measured at Ch.0 & Ch.1	44
Figure 43 Typical test setup for Conducted Test	47
Figure 44 Power Spectral density measured at Ch. 0	48
Figure 45 Power Spectral density measured at Ch. 1	48
Figure 46 Power Spectral density measured at Ch. 0	49
Figure 47 Power Spectral density measured at Ch. 1	49
Figure 48 Power Spectral density measured at Ch. 0	50
Figure 49 Power Spectral density measured at Ch. 1	50
Figure 50 Power Spectral density measured at Ch. 0	51
Figure 51 Power Spectral density measured at Ch. 1	51
Figure 52 Power Spectral density measured at Ch. 0	52

Figure 53 Power Spectral density measured at Ch. 1	52
Figure 54 Power Spectral density measured at Ch. 0	53
Figure 55 Power Spectral density measured at Ch. 1	53
Figure 56 Power Spectral density measured at Ch. 0	54
Figure 57 Power Spectral density measured at Ch. 1	54
Figure 58 Power Spectral density measured at Ch. 0	55
Figure 59 Power Spectral density measured at Ch. 1	55
Figure 60 Power Spectral density measured at Ch. 0	56
Figure 61 Power Spectral density measured at Ch. 1	56
Figure 62 Power Spectral density measured at Ch. 0	57
Figure 63 Power Spectral density measured at Ch. 1	57
Figure 64 Power Spectral density measured at Ch. 0	58
Figure 65 Power Spectral density measured at Ch. 1	58
Figure 66 Power Spectral density measured at Ch. 0	59
Figure 67 Power Spectral density measured at Ch. 1	59
Figure 68: Typical test setup for Conducted Test setup	61
Figure 68: Band edge measured at Ch. 0-Average detector	62
Figure 69: Band edge measured at Ch. 1-Average detector	62
Figure 70: Band edge measured at Ch. 0-Average detector	63
Figure 71: Band edge measured at Ch. 1-Average detector	63
Figure 72: Band edge measured at Ch. 0-Average detector	64
Figure 73: Band edge measured at Ch. 1-Average detector	64
Figure 74: Band edge measured at Ch. 0-Average detector	65
Figure 75: Band edge measured at Ch. 1-Average detector	65
Figure 76: Band edge measured at Ch. 0-Average detector	66
Figure 77: Band edge measured at Ch. 1-Average detector	66
Figure 78: Band edge measured at Ch. 0-Average detector	67
Figure 79: Band edge measured at Ch. 1-Average detector	67
Figure 80: Band edge measured at Ch. 0-Average detector	68
Figure 81: Band edge measured at Ch. 1-Average detector	68
Figure 82: Band edge measured at Ch. 0-Average detector	69
Figure 83: Band edge measured at Ch. 1-Average detector	69
Figure 84: Band edge measured at Ch. 0-Average detector	70
Figure 85: Band edge measured at Ch. 1-Average detector	70
Figure 86: Band edge measured at Ch. 0-Average detector	71
Figure 87: Band edge measured at Ch. 1-Average detector	71
Figure 88: Band edge measured at Ch. 0-Average detector	72
Figure 89: Band edge measured at Ch. 1-Average detector	72
Figure 90: Band edge measured at Ch. 0-Average detector	73
Figure 91: Band edge measured at Ch. 1-Average detector	73
Figure 92: Typical test setup for Conducted Test setup	74
Figure 93: Spurious emission 9 KHz to 1 GHz measured at Ch. 0	75
Figure 94: Spurious emission 1 GHz to 40 GHz measured at Ch. 0	75
Figure 95: Spurious emission 9 KHz to 1 GHz measured at Ch. 1	76
Figure 96: Spurious emission 1 GHz to 40 GHz measured at Ch. 1	76
Figure 97: Spurious emission 9 KHz to 1 GHz measured at Ch. 0	77
Figure 98: Spurious emission 1 GHz to 40 GHz measured at Ch. 0	77
Figure 99: Spurious emission 9 KHz to 1 GHz measured at Ch. 1	78
Figure 100: Spurious emission 1 GHz to 40 GHz measured at Ch. 1	78
Figure 101: Spurious emission 9 KHz to 1 GHz measured at Ch. 0	79
Figure 102: Spurious emission 1 GHz to 40 GHz measured at Ch. 0	79
Figure 103: Spurious emission 9 KHz to 1 GHz measured at Ch. 1	80
Figure 104: Spurious emission 1 GHz to 40 GHz measured at Ch. 1	80

Figure 105: Spurious emission 9 KHz to 1 GHz measured at Ch. 0	81
Figure 106: Spurious emission 1 GHz to 40 GHz measured at Ch. 0	81
Figure 107: Spurious emission 9 KHz to 1 GHz measured at Ch. 1	82
Figure 108: Spurious emission 1 GHz to 40 GHz measured at Ch. 1	82
Figure 109: Spurious emission 9 kHz to 1 GHz measured at Ch. 0	83
Figure 110: Spurious emission 1 GHz to 40 GHz measured at Ch. 0	83
Figure 111: Spurious emission 9 kHz to 1 GHz measured at Ch. 1	84
Figure 112: Spurious emission 1 GHz to 40 GHz measured at Ch. 1	84
Figure 113: Spurious emission 9 kHz to 1 GHz measured at Ch. 0	85
Figure 114: Spurious emission 1 GHz to 40 GHz measured at Ch. 0	85
Figure 115: Spurious emission 9 kHz to 1 GHz measured at Ch. 1	86
Figure 116: Spurious emission 1 GHz to 40 GHz measured at Ch. 1	86
Figure 117: Spurious emission 9 kHz to 1 GHz measured at Ch. 0	87
Figure 118: Spurious emission 1 GHz to 40 GHz measured at Ch. 0	87
Figure 119: Spurious emission 9 kHz to 1 GHz measured at Ch. 1	88
Figure 120: Spurious emission 1 GHz to 40 GHz measured at Ch. 1	88
Figure 121: Spurious emission 9 kHz to 1 GHz measured at Ch. 0	89
Figure 122: Spurious emission 1 GHz to 40 GHz measured at Ch. 0	89
Figure 123: Spurious emission 9 kHz to 1 GHz measured at Ch. 1	90
Figure 124: Spurious emission 1 GHz to 40 GHz measured at Ch. 1	90
Figure 125: Spurious emission 9 kHz to 1 GHz measured at Ch. 0	91
Figure 126: Spurious emission 1 GHz to 40 GHz measured at Ch. 0	91
Figure 127: Spurious emission 9 kHz to 1 GHz measured at Ch. 1	92
Figure 128: Spurious emission 1 GHz to 40 GHz measured at Ch. 1	92
Figure 129: Spurious emission 9 kHz to 1 GHz measured at Ch. 0	93
Figure 130: Spurious emission 1 GHz to 40 GHz measured at Ch. 0	93
Figure 131: Spurious emission 9 kHz to 1 GHz measured at Ch. 1	94
Figure 132: Spurious emission 1 GHz to 40 GHz measured at Ch. 1	94
Figure 133: Spurious emission 9 kHz to 1 GHz measured at Ch. 0	95
Figure 134: Spurious emission 1 GHz to 40 GHz measured at Ch. 0	95
Figure 135: Spurious emission 9 kHz to 1 GHz measured at Ch. 1	96
Figure 136: Spurious emission 1 GHz to 40 GHz measured at Ch. 1	96
Figure 137: Spurious emission 9 kHz to 1 GHz measured at Ch. 0	97
Figure 138: Spurious emission 1 GHz to 40 GHz measured at Ch. 0	97
Figure 139: Spurious emission 9 kHz to 1 GHz measured at Ch. 1	98
Figure 140: Spurious emission 1 GHz to 40 GHz measured at Ch. 1	98
Figure 142: Typical test setup for Conducted Test	100
Figure 143: Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 0	101
Figure 144: Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 0	101
Figure 145: Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 0	102
Figure 146: Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 0	102
Figure 147: Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 0	103
Figure 148: Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 0	103
Figure 149: Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 0	104
Figure 150: Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 0	104
Figure 151: Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 0	105
Figure 152: Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 1	105
Figure 153: Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 1	106
Figure 154: Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 1	106
Figure 155: Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 1	107
Figure 156: Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 1	107
Figure 157: Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 1	108
Figure 158: Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 1	108

Figure 159 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 1.....	109
Figure 160 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 1.....	109
Figure 161 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 0.....	110
Figure 162 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 0.....	110
Figure 163 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 0.....	111
Figure 164 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 0.....	111
Figure 165 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 0.....	112
Figure 166 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 0.....	112
Figure 167 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 0.....	113
Figure 168 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 0.....	113
Figure 169 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 0.....	114
Figure 170 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 1.....	114
Figure 171 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 1.....	115
Figure 172 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 1.....	115
Figure 173 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 1.....	116
Figure 174 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 1.....	116
Figure 175 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 1.....	117
Figure 176 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 1.....	117
Figure 177 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 1.....	118
Figure 178 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 1.....	118
Figure 179 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 0.....	119
Figure 180 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 0.....	119
Figure 181 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 0.....	120
Figure 182 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 0.....	120
Figure 183 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 0.....	121
Figure 184 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 0.....	121
Figure 185 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 0.....	122
Figure 186 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 0.....	122
Figure 187 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 0.....	123
Figure 188 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 1.....	123
Figure 189 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 1.....	124
Figure 190 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 1.....	124
Figure 191 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 1.....	125
Figure 192 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 1.....	125
Figure 193 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 1.....	126
Figure 194 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 1.....	126
Figure 195 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 1.....	127
Figure 196 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 1.....	127
Figure 197 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 0.....	128
Figure 198 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 0.....	128
Figure 199 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 0.....	129
Figure 200 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 0.....	129
Figure 201 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 0.....	130
Figure 202 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 0.....	130
Figure 203 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 0.....	131
Figure 204 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 0.....	131
Figure 205 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 0.....	132
Figure 206 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 1.....	132
Figure 207 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 1.....	133
Figure 208 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 1.....	133
Figure 209 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 1.....	134
Figure 210 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 1.....	134
Figure 211 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 1.....	135

Figure 212 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 1	135
Figure 213 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 1	136
Figure 214 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 1	136
Figure 215 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 0	137
Figure 216 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 0	137
Figure 217 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 0	138
Figure 218 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 0	138
Figure 219 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 0	139
Figure 220 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 0	139
Figure 221 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 0	140
Figure 222 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 0	140
Figure 223 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 0	141
Figure 224 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 1	141
Figure 225 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 1	142
Figure 226 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 1	142
Figure 227 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 1	143
Figure 228 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 1	143
Figure 229 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 1	144
Figure 230 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 1	144
Figure 231 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 1	145
Figure 232 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 1	145
Figure 233 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 0	146
Figure 234 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 0	146
Figure 235 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 0	147
Figure 236 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 0	147
Figure 237 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 0	148
Figure 238 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 0	148
Figure 239 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 0	149
Figure 240 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 0	149
Figure 241 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 0	150
Figure 242 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 1	150
Figure 243 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 1	151
Figure 244 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 1	151
Figure 245 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 1	152
Figure 246 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 1	152
Figure 247 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 1	153
Figure 248 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 1	153
Figure 249 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 1	154
Figure 250 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 1	154
Figure 251 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 0	155
Figure 252 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 0	155
Figure 253 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 0	156
Figure 254 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 0	156
Figure 255 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 0	157
Figure 256 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 0	157
Figure 257 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 0	158
Figure 258 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 0	158
Figure 259 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 0	159
Figure 260 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 1	159
Figure 261 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 1	160
Figure 262 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 1	160
Figure 263 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 1	161
Figure 264 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 1	161

Figure 265 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 1	162
Figure 266 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 1	162
Figure 267 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 1	163
Figure 268 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 1	163
Figure 269 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 0	164
Figure 270 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 0	164
Figure 271 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 0	165
Figure 272 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 0	165
Figure 273 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 0	166
Figure 274 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 0	166
Figure 275 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 0	167
Figure 276 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 0	167
Figure 277 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 0	168
Figure 278 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 1	168
Figure 279 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 1	169
Figure 280 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 1	169
Figure 281 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 1	170
Figure 282 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 1	170
Figure 283 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 1	171
Figure 284 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 1	171
Figure 285 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 1	172
Figure 286 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 1	172
Figure 287 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 0	173
Figure 288 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 0	173
Figure 289 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 0	174
Figure 290 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 0	174
Figure 291 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 0	175
Figure 292 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 0	175
Figure 293 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 0	176
Figure 294 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 0	176
Figure 295 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 0	177
Figure 296 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 1	177
Figure 297 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 1	178
Figure 298 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 1	178
Figure 299 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 1	179
Figure 300 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 1	179
Figure 301 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 1	180
Figure 302 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 1	180
Figure 303 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 1	181
Figure 304 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 1	181
Figure 305 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 0	182
Figure 306 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 0	182
Figure 307 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 0	183
Figure 308 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 0	183
Figure 309 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 0	184
Figure 310 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 0	184
Figure 311 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 0	185
Figure 312 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 0	185
Figure 313 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 0	186
Figure 314 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 1	186
Figure 315 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 1	187
Figure 316 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 1	187
Figure 317 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 1	188

Figure 318 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 1	188
Figure 319 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 1	189
Figure 320 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 1	189
Figure 321 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 1	190
Figure 322 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 1	190
Figure 323 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 0	191
Figure 324 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 0	191
Figure 325 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 0	192
Figure 326 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 0	192
Figure 327 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 0	193
Figure 328 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 0	193
Figure 329 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 0	194
Figure 330 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 0	194
Figure 331 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 0	195
Figure 332 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 1	195
Figure 333 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 1	196
Figure 334 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 1	196
Figure 335 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 1	197
Figure 336 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 1	197
Figure 337 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 1	198
Figure 338 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 1	198
Figure 339 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 1	199
Figure 340 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 1	199
Figure 341 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 0	200
Figure 342 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 0	200
Figure 343 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 0	201
Figure 344 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 0	201
Figure 345 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 0	202
Figure 346 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 0	202
Figure 347 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 0	203
Figure 348 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 0	203
Figure 349 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 0	204
Figure 350 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 1	204
Figure 351 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 1	205
Figure 352 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 1	205
Figure 353 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 1	206
Figure 354 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 1	206
Figure 355 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 1	207
Figure 356 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 1	207
Figure 357 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 1	208
Figure 358 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 1	208
Figure 359 tfpd32 application screenshot	213
Figure 360 tfpd32 application initialization root_ screenshot	213
Figure 361 Tera term application screenshot	214
Figure 362 Tera term application Login screenshot	214
Figure 363 Initializing RUT screenshot	215
Figure 364 Atheros Radio Test GUI screenshot-1	215
Figure 365 Atheros Radio Test GUI screenshot -2	216

LIST OF TABLES

Table 1 List of Equipment used for Conducted RF Test.....	14
Table 2 MUT details	15
Table 3: List of cables.....	15
Table 4 Result for 6 dB Bandwidth in both 40 MHz and 5 MHz modulation bandwidth.....	36
Table 5 Max RF out power for 17 dBi configuration.....	45
Table 6 Consolidated values across channels and final power for 17 dBi configuration.....	45
Table 7 Max RF out power for 6 dBi configuration.....	46
Table 8 Consolidated values across channels and final power for 6 dBi configuration.....	46
Table 9 Result of PSD for 17 dBi configuration for both 40 MHz and 5 MHz modulation bandwidth	60
Table 10 Result of PSD for 6dBi configuration for both 40 MHz and 5 MHz modulation bandwidth	60
Table 11: Unwanted emission Limit.....	99
Table 12: General Field strength limit below 30MHz	99
Table 13: General Field strength limit above 30MHz.....	99
Table 14 Result for 17 dBi configuration -- 40 MHz modulation bandwidth.....	209
Table 15 Result for 17 dBi configuration - 5 MHz modulation bandwidth	210
Table 16 Result for 6 dBi configuration -- 40 MHz modulation bandwidth.....	211
Table 17 Result for 6 dBi configuration -5 MHz modulation bandwidth	212

1 TEST REPORT SUMMARY

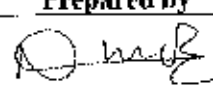
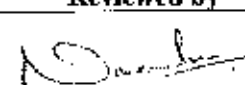
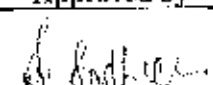
Applicant	Cambium Networks
Manufacturer	Cambium Networks
Product Name	ePMP2000
Product Model	C050900P031A
Product Serial Number	000456D18458
Date of Test	24 th Jan 2016 to 15 th Feb 2016
Venue of Test	Tarang Lab

Applicable Standard	Description	Results
47 CFR Part 15 Feb 2016	Duty cycle and Transmission Duration	NA
	§15.407 (a) (3)- 6 dB Bandwidth measurement	PASS
	§15.407 (a) (3)- Maximum conducted Output Power	PASS
	§15.407 (a) (3)- Power Spectral Density	PASS
	§15.247 (d)- Operating Band edge measurements	PASS
	§15.247 (d)- Radio frequency power in any 100 kHz bandwidth outside the intentional band	PASS
	§15.407 b (3) -Transmission Unwanted emission (Conducted)	PASS

ePMP2000 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 has 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
		
Nishanth P C	Narendra Babu M	Satheesh I
EMI/EMC Test Engineer	Lead EMI/EMC Test Engineer	Technical Manager

2 GENERAL INFORMATION

2.1 ACCREDITATION DETAILS

Following are the accreditation and listing details for Tarang.

Accreditation / Listing body	Registration / Company / Certificate Number
NABL, India	Certificate No: T-1533, T-1534 http://www.nabl-india.org/
FCC (Federal Communications Commission)	Registration Number: 799247 http://www.fcc.gov/
IC (Industry Canada)	Company Number: 9023A-1 http://www.ic.gc.ca

2.2 MEASUREMENT UNCERTAINTY

The following measurement uncertainties are applicable to the relevant tests that are mentioned below:

Name of the test	Measurement Uncertainty
Radiated Emission from 30 MHz to 1 GHz at 3 meter	± 4.6687 dB
Radiated Emission from 1 GHz to 18 GHz at 3 meter	± 3.2297 dB
Radiated Emission from 18 GHz to 26.5 GHz at 3 meter	± 3.7832 dB
Radiated Emission from 26.5 GHz to 40 GHz at 3 meter	± 3.7962 dB
Conducted Emission from 150 kHz to 30 MHz	± 1.6160 dB

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
Spectrum Analyzer	Keysight Technologies	N9020A	MY54420183	31 st Mar 2016
X series USB Peak and Average Power sensor	Keysight Technologies	U2021XA	MY55050001	31 st Mar 2016
X series USB Peak and Average Power sensor	Keysight Technologies	U2021XA	MY54390014	31 st Mar 2016
EMI Test Receiver	R&S	ES1B40	100306	21 st Jan 2017

Table 1 List of Equipment used for Conducted RF Test

4 PRODUCT INFORMATION

4.1 DESCRIPTION OF THE PRODUCT

EUT is a point to point & point to multipoint fixed outdoor Transceiver with the following defined channels.

40 MHz channel for 17 dBi and 6 dBi antenna	5 MHz channel for 17 dBi and 6 dBi antenna
Low – 5750 MHz	Low – 5735 MHz
Mid - 5775 MHz	Mid – 5775 MHz
High - 5825 MHz	High – 5840 MHz

Product	ePMP2000
Model Number	C050900P031A
Serial Number	000456D18458
Product Category / Type of Equipment	ITE
EUT Operating Voltage	120 V AC / 230 V AC
EUT Operating frequency range	60 Hz / 50 Hz
Max EUT Operating Current	<1 A

Table 2 EUT details

Cable No.	Cable Name	Cable Length	Power / Interconnection cable	Shielded / Unshielded	Cable photos
Cable - 1	Power cable	0.8 meter	Power	Unshielded	Figure 9 of EMC Test Report_DBN 1604TEL539-C.pdf
Cable - 2	Ethernet Cable	1.5 meter	Interconnection	Unshielded	Figure 10 of EMC Test Report_DBN 1604TEL539-C.pdf
Cable - 3	Ethernet Cable	3.05 meter	Interconnection	Unshielded	Figure 11 of EMC Test Report_DBN 1604TEL539-C.pdf

Table 3: List of cables

4.2 SOFTWARE AND FIRMWARE DETAILS

Atheros Radio Test 2 (ART2-GUI) Version 2.3

5 TEST DETAILS

5.1 PRODUCT AND TEST SETUP

5.1.1 PRODUCT CONFIGURATION

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

The 5.8 GHz ePMP Integrated Radio was configured with test software and configured to have the following settings during the course of testing:

- 40 MHz modulation bandwidth for low, mid & high channels
 - Rate - HT40,
 - 54 Mbps OFDM, MCS15 / 270 Mbps
 - Tx Power is 17.5 dBm for 17 dBi antenna configuration-Low channel
 - Tx Power is 18 dBm for 17 dBi antenna configuration-Mid channel
 - Tx Power is 18 dBm for 17 dBi antenna configuration-High channel
 - Tx Power is 24 dBm for 6 dBi antenna configuration-Low channel
 - Tx Power is 29 dBm for 6 dBi antenna configuration-Mid channel
 - Tx Power is 27 dBm for 6 dBi antenna configuration-High channel
- 5 MHz modulation bandwidth for low, mid & high channels
 - Rate - Legacy,
 - 54 Mbps OFDM, MCS15 / 130 Mbps
 - Tx Power is 18 dBm for 17 dBi antenna configuration-Low channel
 - Tx Power is 18 dBm for 17 dBi antenna configuration-Mid channel
 - Tx Power is 17 dBm for 17 dBi antenna configuration-High channel
 - Tx Power is 28 dBm for 6 dBi antenna configuration-Low channel
 - Tx Power is 29 dBm for 6 dBi antenna configuration-Mid channel
 - Tx Power is 28 dBm for 6 dBi antenna configuration-High channel

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

5.1.2 TEST SETUP DETAILS

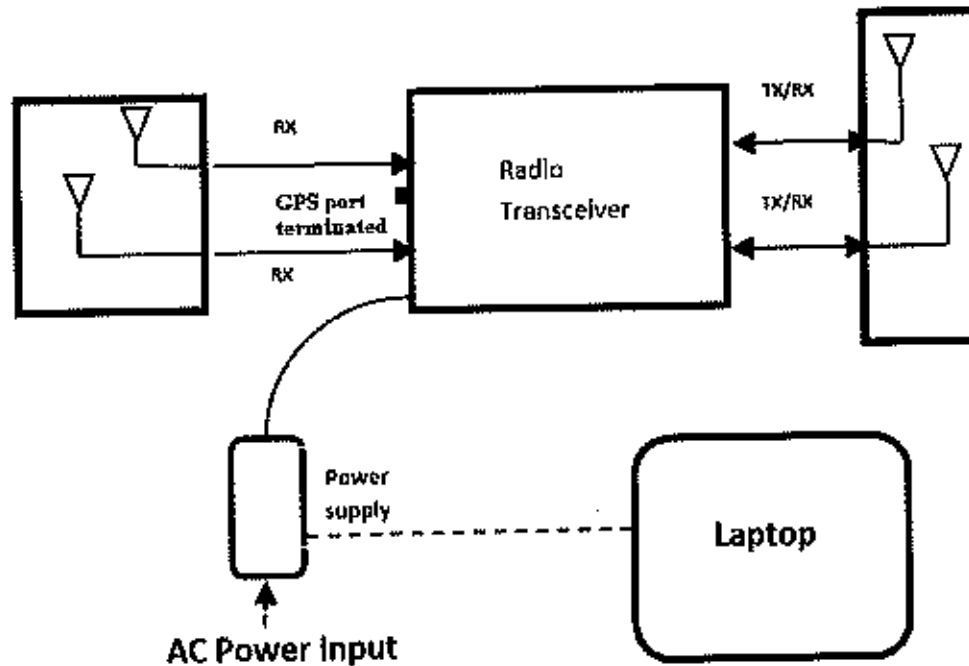


Figure 1 Block diagram of the EUT test setup

5.1.3 ACCESSORIES

Name of the Equipment	Manufacturer	Model Number	Serial Number
17 dBi Antenna Beam steer- Rx	Cambium Networks	C050900D020A	NA
17 dBi Antenna sector- Tx	Cambium Networks	C050900D021A	NA
Power Supply	Cambium Networks	NET P30 56	031-326-6719
6 dBi Antenna	Cambium Networks	C005095D360A	NA
Switching Power Supply Gigabit Compatible	Cambium Networks	NET-P30-56	N000000L034A

5.2 APPLICABLE TESTS

Applicable Standard	Description	Test level / Test Voltage	Applicability
47 CFR Part 15, Feb 2016	Duty Cycle and transmission duration	NA	Antenna port
	6 dB Bandwidth measurement	≥ 500 kHz	Antenna port
	Maximum Conducted Output Power	≤ 1 Watts	Antenna port
	Power Spectral Density	Power spectral density should be ≤ 30 dBm in 500 kHz bandwidth	Antenna port
	Operating Band edge	5725 MHz to 5850 MHz	Antenna port
	Radio frequency power in any 100 kHz bandwidth outside the Intentional band	30 dB below intentional frequency power measured in any 100 kHz bandwidth	Antenna port
	Transmitter Unwanted emission (Conducted)	9 kHz to 40 GHz	Antenna port

5.3 TEST RESULT

5.3.1 DUTY CYCLE (X) AND TRANSMISSION DURATION (T)

5.3.1.1 TEST SPECIFICATION

Test Standard	47 CFR, Part 15 Feb 2016
Test Procedure	789033 D2 General U-NII Test Procedures New Rule V01r01
Resolution Bandwidth	8 MHz
Video Bandwidth	50 MHz
Sweep Time	Auto
Attenuation	Auto
Test Mode	Conducted
Detector	RMS
Input Voltage	120 V AC
Input Frequency	60 Hz
Temperature	21.0 °C
Humidity	54.0 %
Tested By	Nishanth
Test Date	24 th Jan 2016

5.3.1.2 LIMITS

NA

5.3.1.3 TEST SETUP

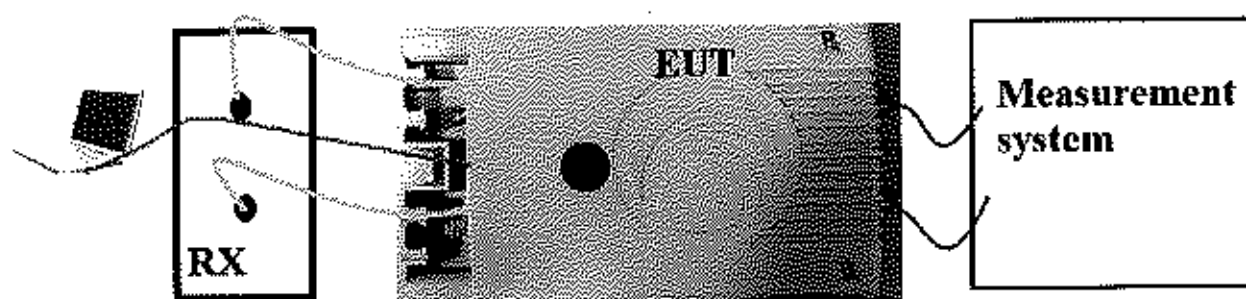


Figure 2 Typical test setup for Conducted RF Test

5.3.1.4 TEST PROCEDURE

The Conducted test was performed using the Spectrum analyzer. Measurements were done as per section II B of "789033 D2 General U-NII Test Procedures New Rule V01r01". The RF output of the EUT was connected to the input port of Spectrum analyzer using an attenuator. The graph and data captured from spectrum analyzer and recorded.

5.3.1.5 MEASUREMENT GRAPHS / DATA

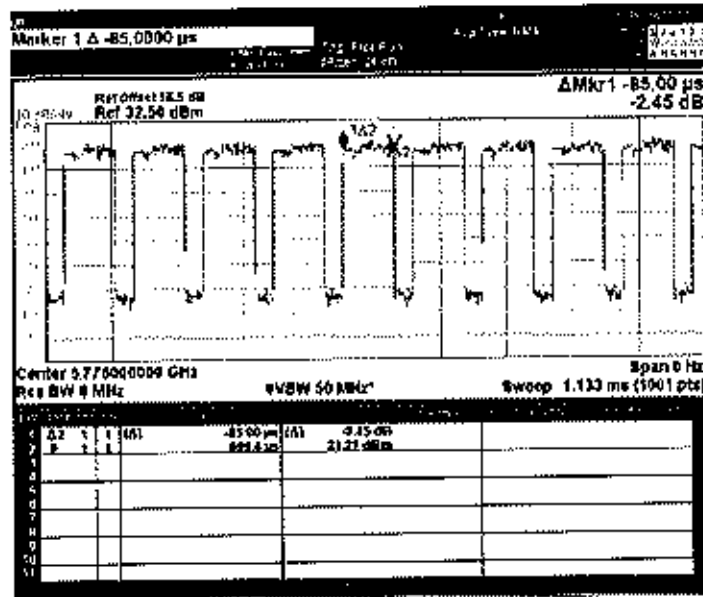


Figure 3 Measured ON time

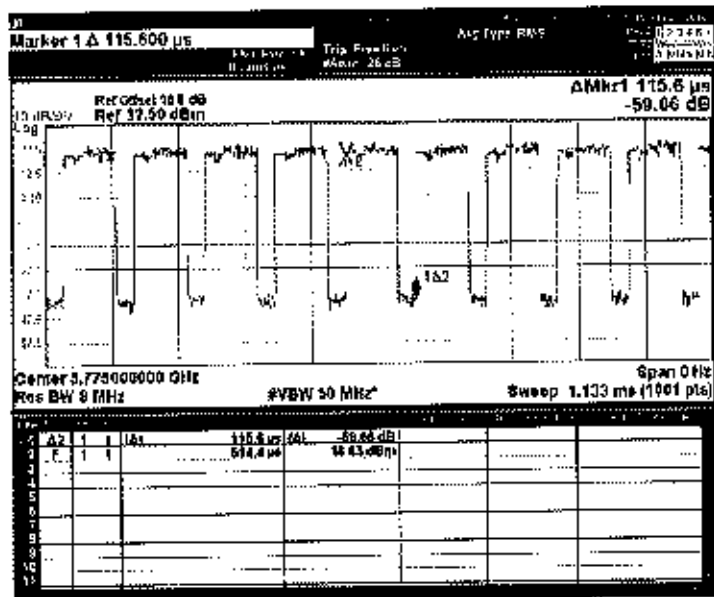


Figure 4 Measured Transmission Period (T)

5.3.1.6 RESULT

The Duty cycle and Transmission duration data were recorded.

Mode	ON time (μsec)	T (μsec)	Duty Cycle X (Linear)	Duty Cycle (%)	50/T Minimum RBW and VBW (kHz)
Tx ON	85	115.6	0.735	73.5%	432.52

*Note: Duty cycle = (ON time / Period) * 100*

5.3.2 6 DB BANDWIDTH MEASUREMENT

5.3.2.1 TEST SPECIFICATION

Test Standard	47 CFR Part 15 Subpart E Feb 2016
Test Procedure	789033 D2 General U-NII Test Procedures New Rule V01r01
Resolution Bandwidth	100 kHz
Video Bandwidth	300 kHz
Sweep Time	100ms
Attenuation	Auto
Test Mode	Conducted
Detector	Peak
Input Voltage	120 V AC
Input Frequency	60 Hz
Temperature	21.0 °C
Humidity	54.0 %
Tested By	Nishanth/Suresh GN
Test Date	24 th Jan 2016

5.3.2.2 LIMITS

Standard	Reference section	Frequency range	Limit (min. 6 dB Bandwidth)
47 CFR, Part 15, Subpart E Feb 2016	§15.407 (a) (3)	5725 MHz to 5850 MHz	≥ 500 kHz

5.3.2.3 TEST SETUP

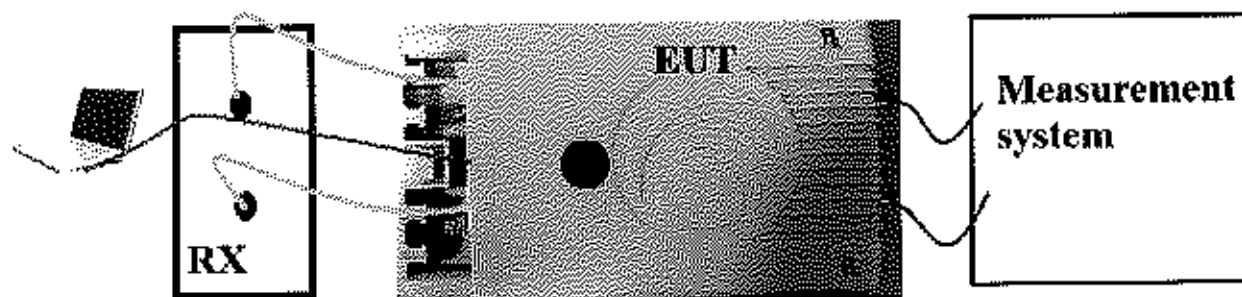


Figure 5 Typical test setup for Conducted RF Test

5.3.2.4 TEST PROCEDURE

The Conducted test was performed using the Spectrum analyzer. Measurements were done as per the "789033 D2 General U-NII Test Procedures New Rule V01r01". The RF output of the EUT was connected to the input port of Spectrum analyzer using an attenuator. The graph and data captured from spectrum analyzer and recorded.

5.3.2.5 MEASUREMENT GRAPHS / DATA

5.3.2.5.1 40 MHz MODULATION BANDWIDTH FOR 17 dBi POWER SETTINGS

LOW CHANNEL_5750 MHz

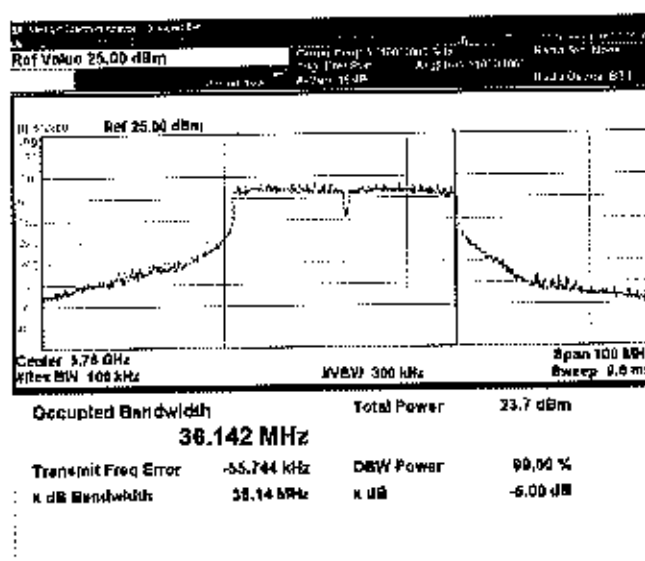


Figure 6 6dB Bandwidth measured at Ch.U

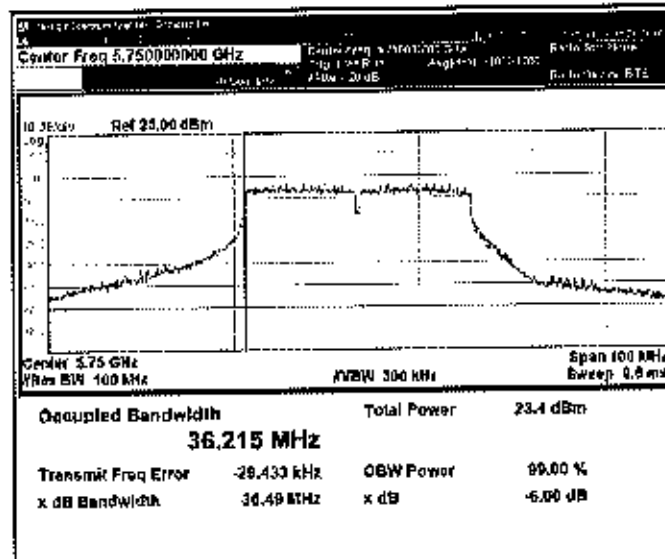


Figure 7 6dB Bandwidth measured at Ch.1

MID CHANNEL 5775 MHZ

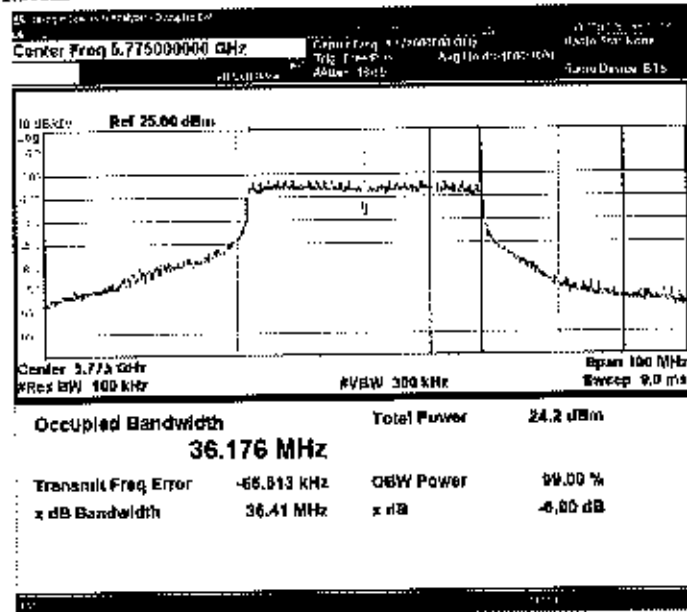


Figure 8 6 dB Bandwidth measured at Ch.0

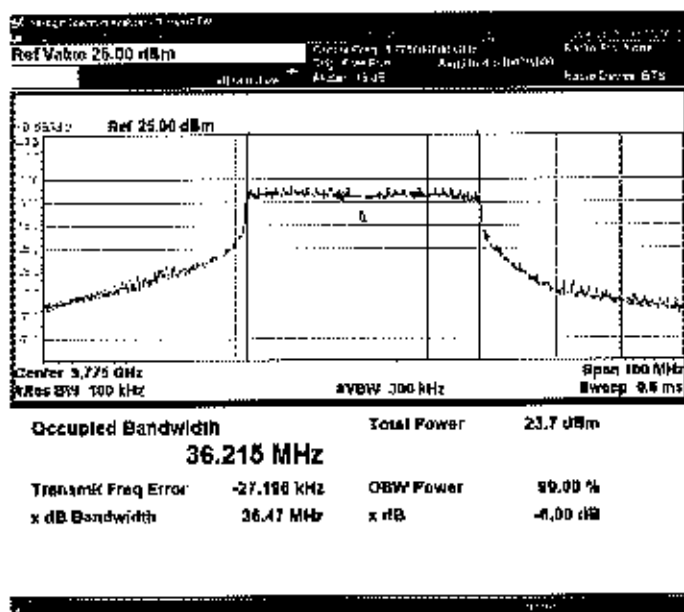


Figure 9 6 dB Bandwidth measured at Ch.1

HIGH CHANNEL_5825 MHZ

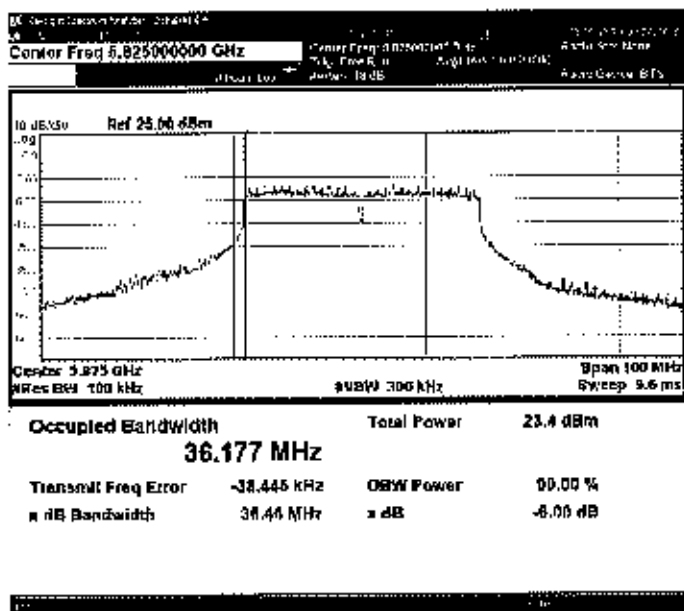


Figure 10 6 dB Bandwidth measured at Ch.0

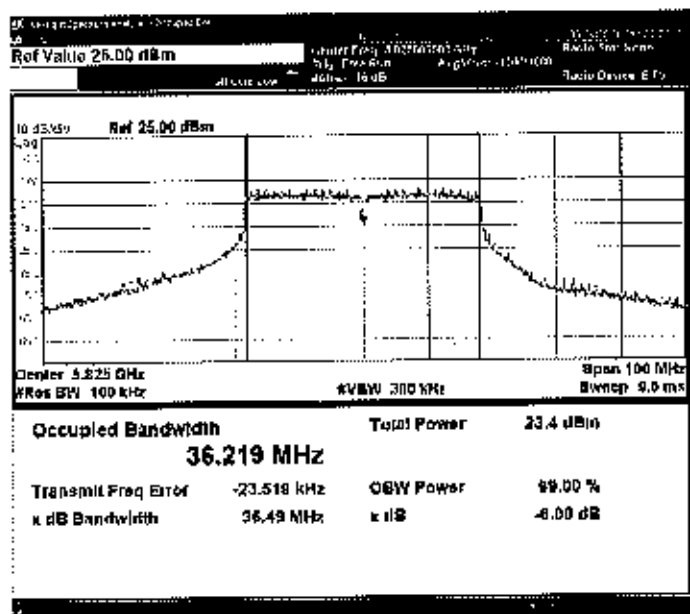


Figure 11 6 dB Bandwidth measured at Ch.1

5.3.2.5.2 40 MHz MODULATION BANDWIDTH FOR 6 dB POWER SETTINGS LOW CHANNEL _5750 MHz

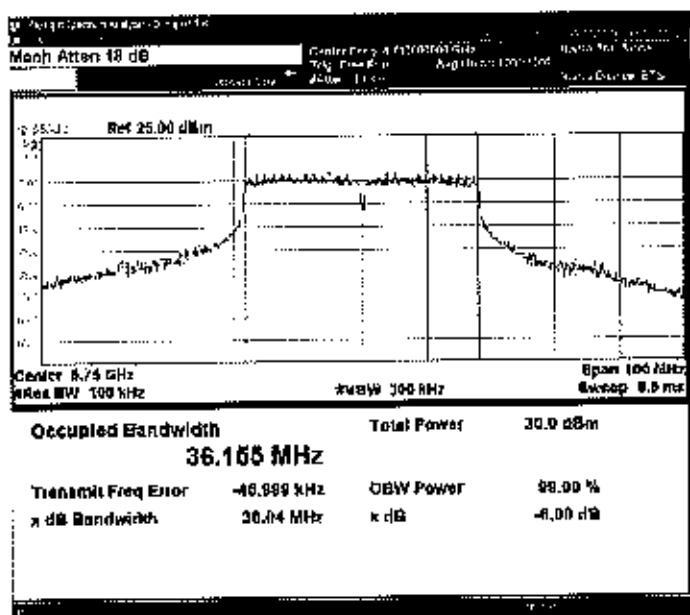


Figure 12 6 dB Bandwidth measured at Ch.0

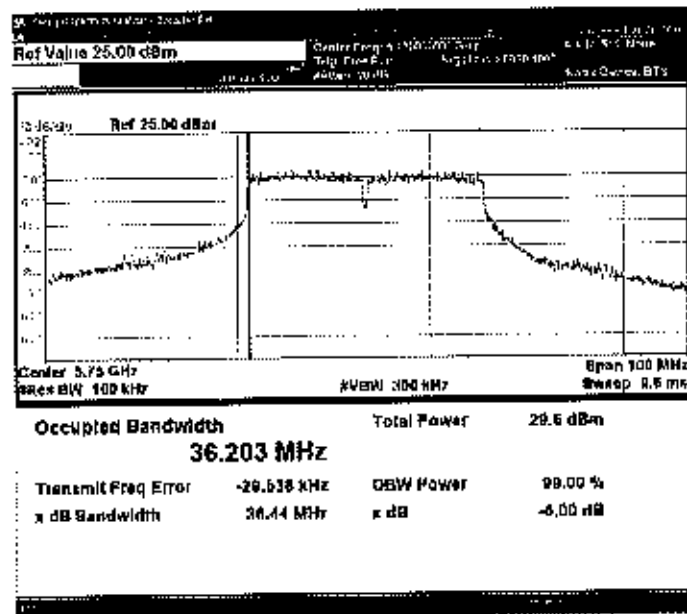


Figure 13 6 dB Bandwidth measured at Ch.1

MID CHANNEL, 5775 MHz

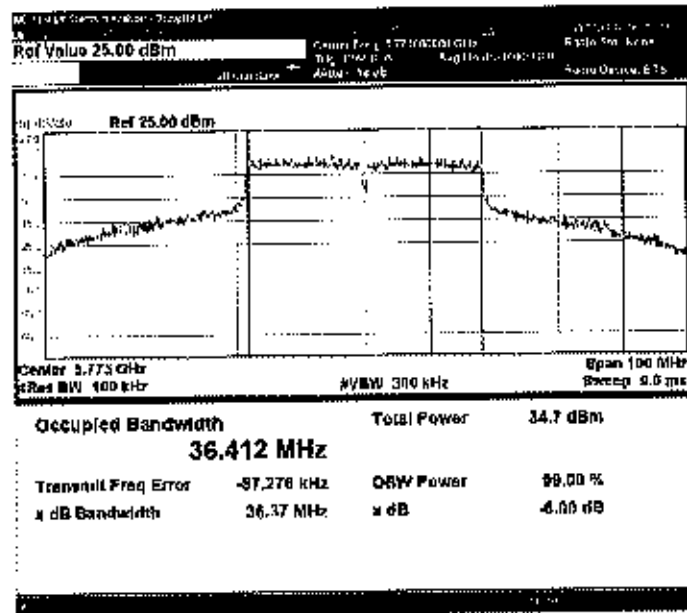


Figure 14 6 dB Bandwidth measured at Ch.0

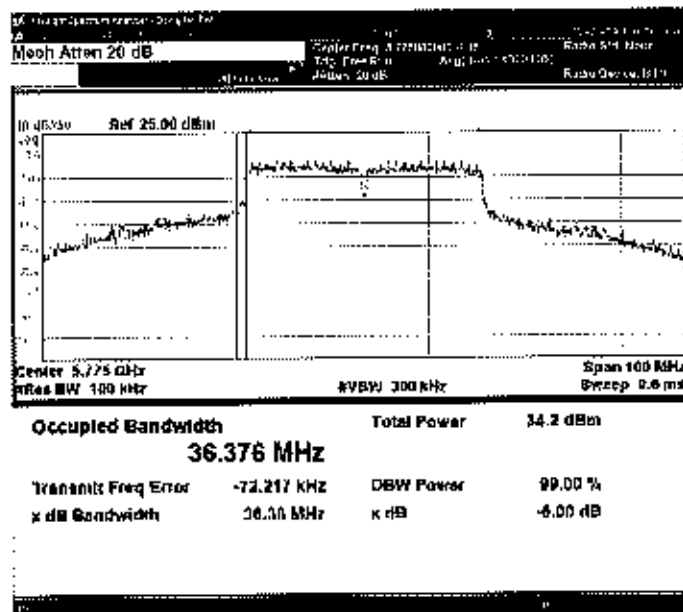


Figure 15 6 dB Bandwidth measured at Ch.1

HIGH CHANNEL_5825 MHz

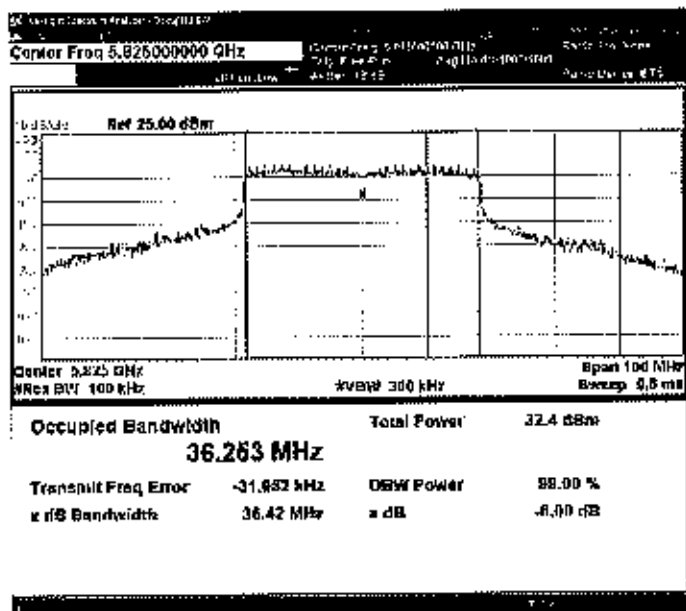


Figure 16 6 dB Bandwidth measured at Ch.0

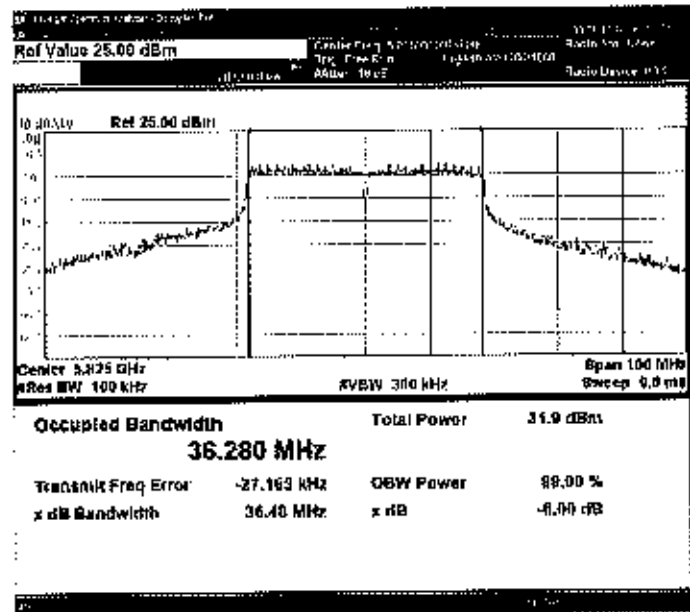


Figure 17 6 dB Bandwidth measured at Ch.1

5.3.2.5.3 5 MHz MODULATION BANDWIDTH FOR 17 dBm POWER SETTINGS LOW CHANNEL_5735 MHz

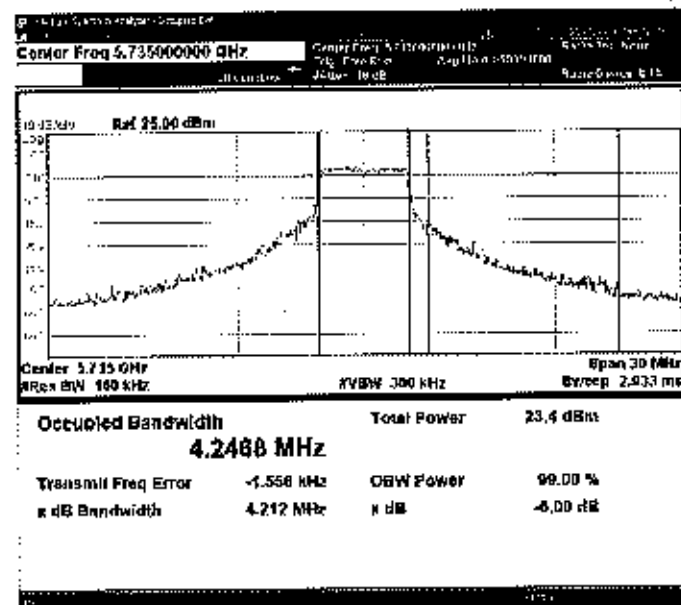


Figure 18 6 dB Bandwidth measured at Ch.0

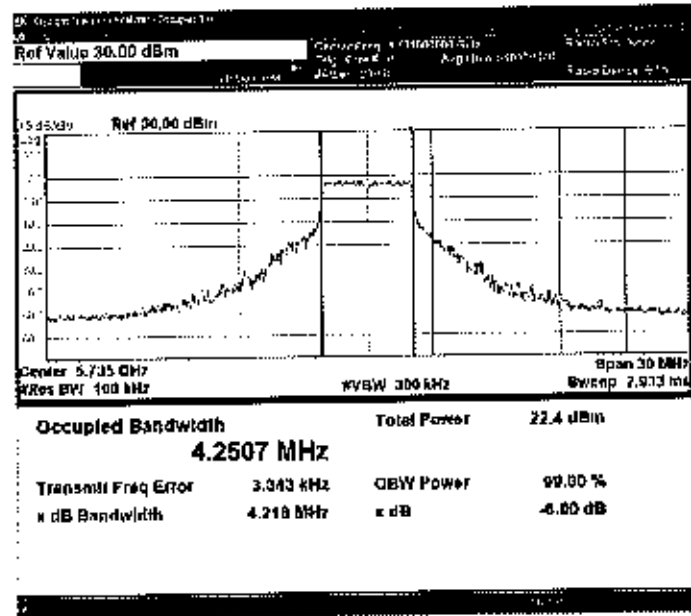


Figure 19 6 dB Bandwidth measured at Ch.1

MID CHANNEL_5775 MHz

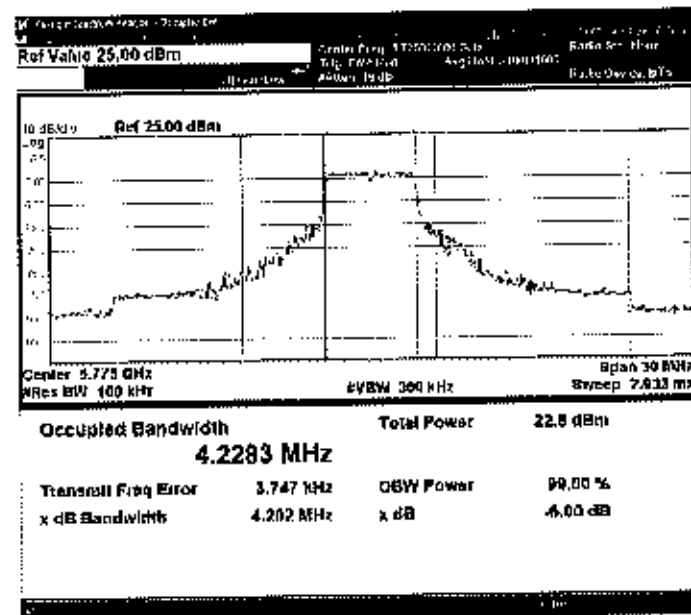


Figure 20 6 dB Bandwidth measured at Ch.0

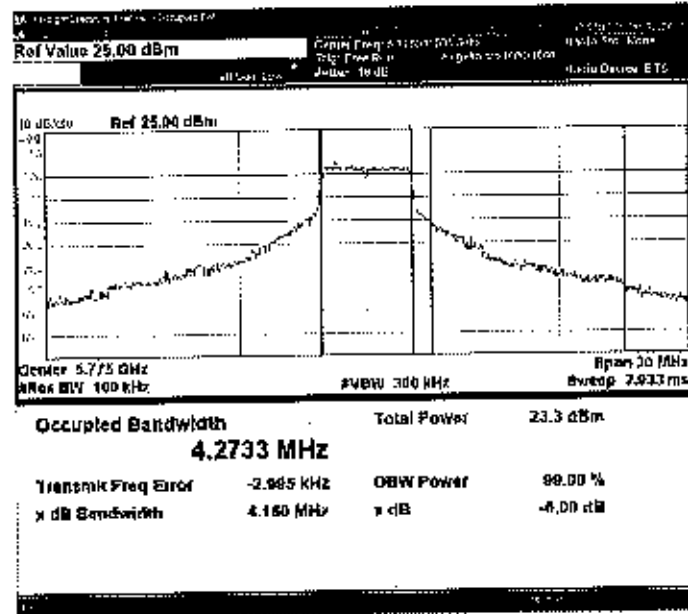


Figure 21 6 dB Bandwidth measured at Ch.1

HIGH CHANNEL_5840 MHz

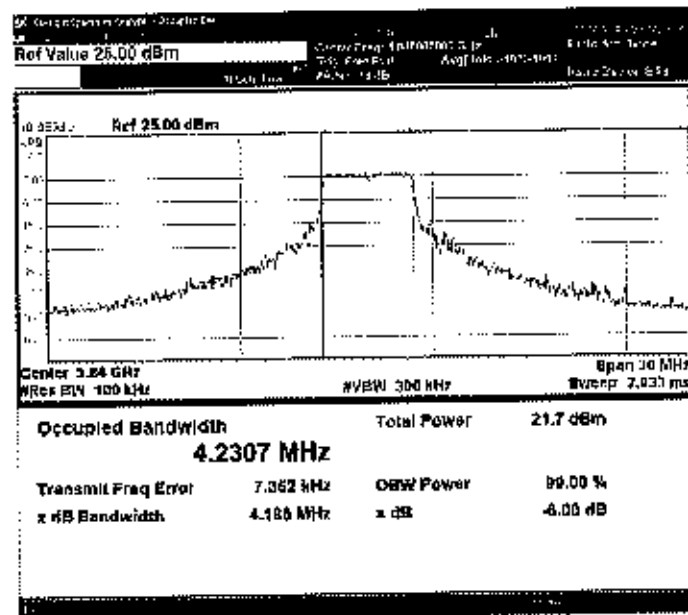


Figure 22 6 dB Bandwidth measured at Ch.0

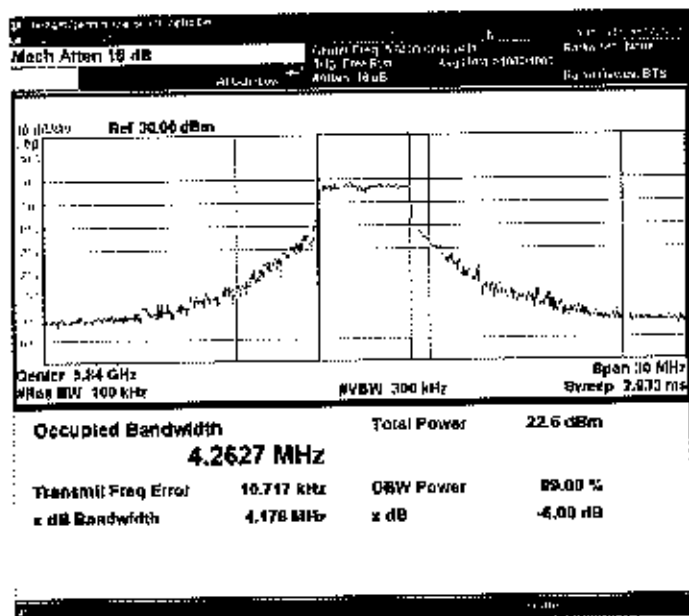


Figure 23 6 dB Bandwidth measured at Ch.1

5.3.2.5.4 5 MHz MODULATION BANDWIDTH FOR 6 dBi POWER SETTINGS LOW CHANNEL_5735 MHz

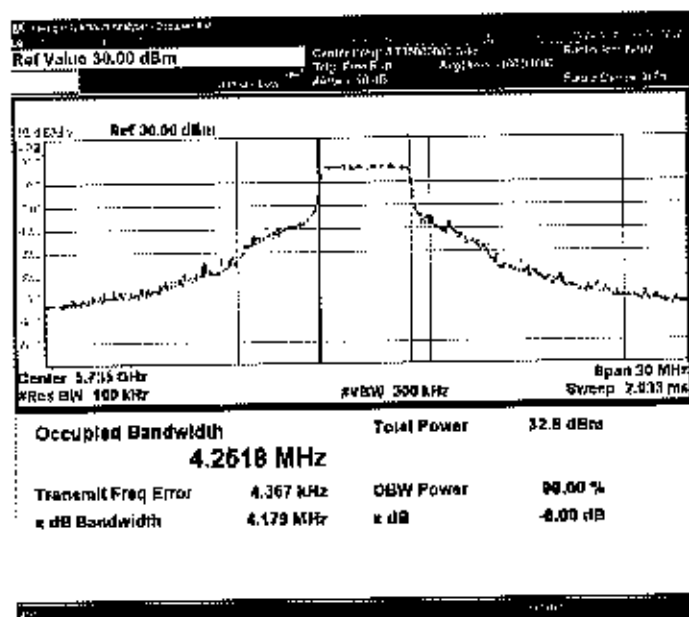


Figure 24 6 dB Bandwidth measured at Ch.0

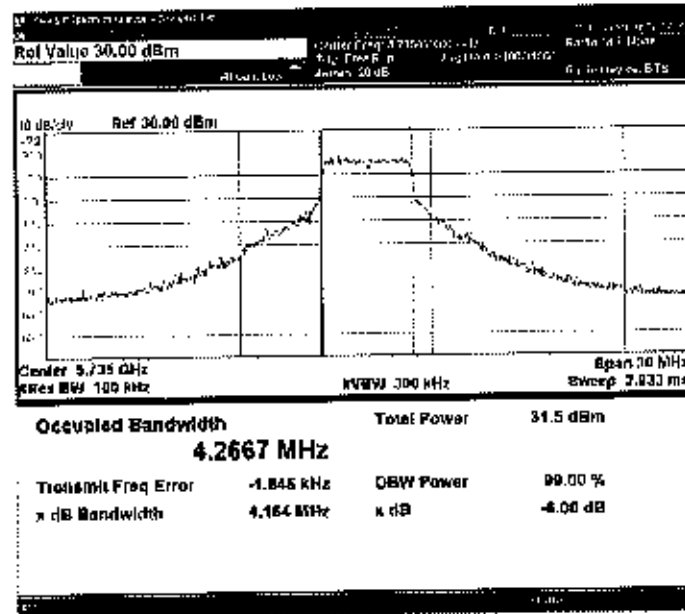


Figure 25 6 dB Bandwidth measured at Ch.1

MID CHANNEL, 5775 MHz

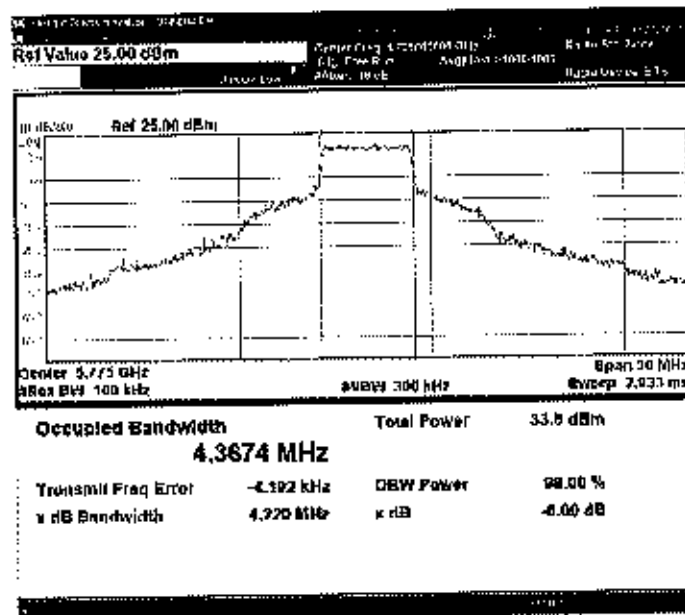


Figure 26 6 dB Bandwidth measured at Ch.0

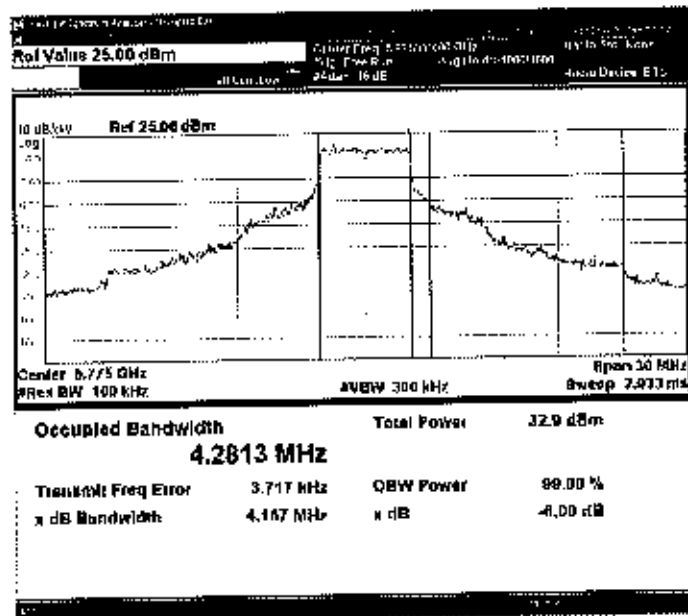


Figure 27 6 dB Bandwidth measured at Ch.1

HIGH CHANNEL_5840 MHz

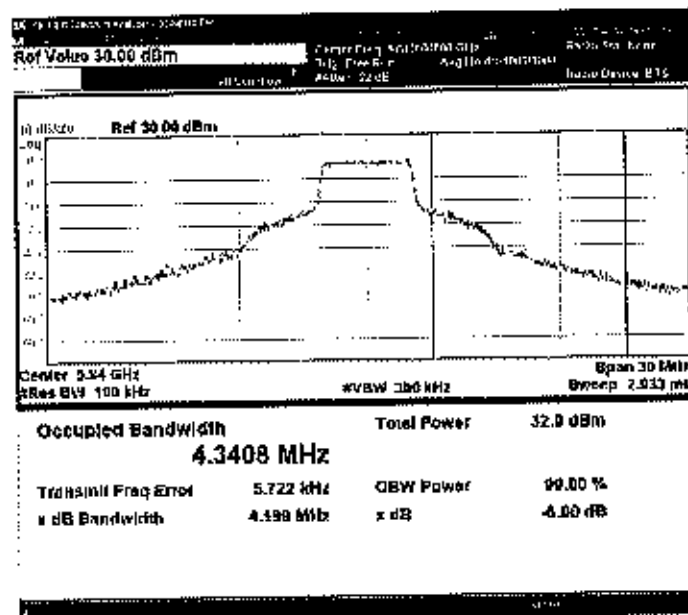


Figure 28 6 dB Bandwidth measured at Ch.0

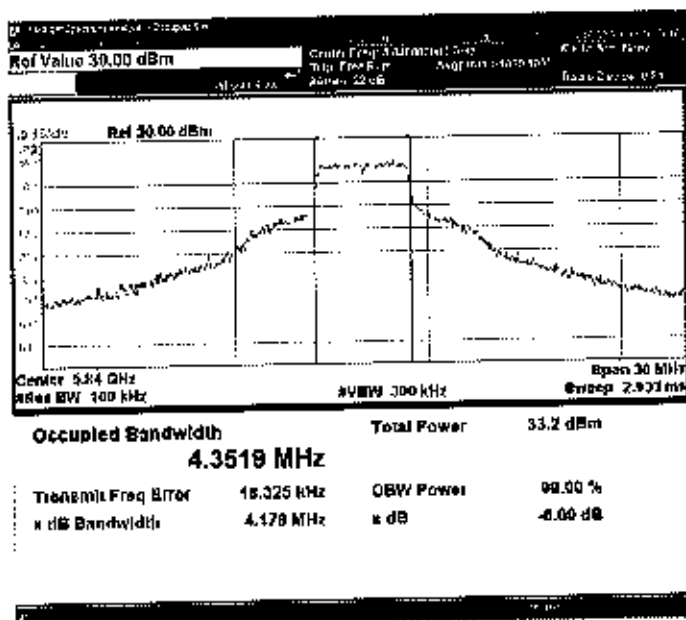


Figure 29 6 dB Bandwidth measured at Ch.1

5.3.2.6 RESULT

The 6 dB bandwidth for all channels in both 40 MHz & 5 MHz modulation bandwidth is more than 500 kHz. Refer below table for consolidated data.

Configuration	Modulation Bandwidth (MHz)	Antenna path	Channel Frequency (MHz)	Recorded value (MHz)	Limit (kHz)	Result
17 dBi	40	Ch. 0	5750	36.14	≥ 500	Pass
	40	Ch. 0	5775	36.41	≥ 500	Pass
	40	Ch. 0	5825	36.46	≥ 500	Pass
	40	Ch. 1	5750	36.49	≥ 500	Pass
	40	Ch. 1	5775	36.47	≥ 500	Pass
	40	Ch. 1	5825	36.49	≥ 500	Pass
	5	Ch. 0	5735	4.212	≥ 500	Pass
	5	Ch. 0	5775	4.202	≥ 500	Pass
	5	Ch. 0	5840	4.186	≥ 500	Pass
	5	Ch. 1	5735	4.210	≥ 500	Pass
	5	Ch. 1	5775	4.160	≥ 500	Pass
	5	Ch. 1	5840	4.178	≥ 500	Pass
6 dBi	40	Ch. 0	5750	36.04	≥ 500	Pass
	40	Ch. 0	5775	36.37	≥ 500	Pass
	40	Ch. 0	5825	36.42	≥ 500	Pass
	40	Ch. 1	5750	36.44	≥ 500	Pass
	40	Ch. 1	5775	36.38	≥ 500	Pass
	40	Ch. 1	5825	36.48	≥ 500	Pass
	5	Ch. 0	5735	4.179	≥ 500	Pass
	5	Ch. 0	5775	4.220	≥ 500	Pass
	5	Ch. 0	5840	4.199	≥ 500	Pass
	5	Ch. 1	5735	4.164	≥ 500	Pass
	5	Ch. 1	5775	4.167	≥ 500	Pass
	5	Ch. 1	5840	4.178	≥ 500	Pass

Table 4 Result for 6 dB Bandwidth in both 40 MHz and 5 MHz modulation bandwidth

5.3.3 MAXIMUM CONDUCTED OUTPUT POWER

5.3.3.1 TEST SPECIFICATION

Test Standard	47 CFR Part 15 Subpart E Feb 2016
Test Procedure	789033 D2 General U-NII Test Procedures New Rule V01r01
Test Mode	Conducted
Defector	Average
Input Voltage	120 V AC
Input Frequency	60 Hz
Temperature	21.0 °C
Humidity	54.0 %
Tested By	Nisbanth / Suresh GN
Test Date	24 th Jan 2016

5.3.3.2 LIMITS

Standard	Reference section	Frequency range	Limit
47 CFR Part 15 Subpart E Feb 2016	§15.407 (a)3 905462 D0 6802.11 Channel plans New rules v01	5725 MHz to 5850 MHz	Max conducted Tx power ≤ 30 dBm (1W) Max Limit (for 6 dBi antenna configuration) : ≤ 30 dBm Max Limit (for 17 dBi antenna) : ≤ 19 dBm

5.3.3.3 TEST SETUP

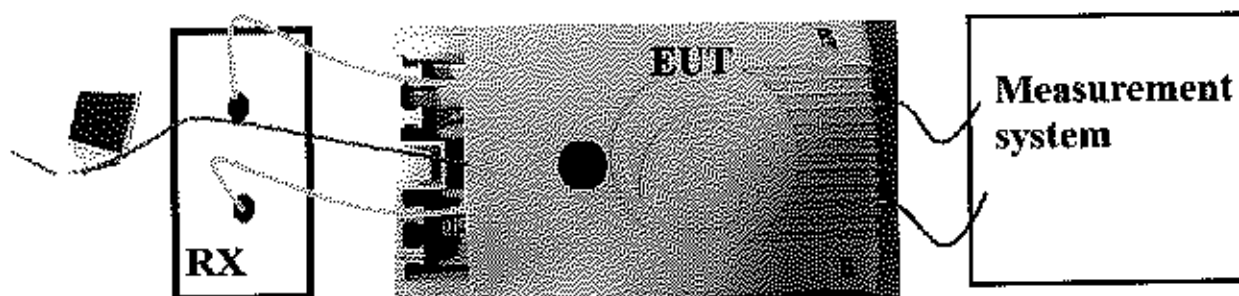


Figure 30 Typical test setup for Conducted RF Test

5.3.3.4 TEST PROCEDURE

The Conducted test was performed using the power meter. Measurements were done as per Section II E 3.b (Method PM-G) of KDB "789033 DO2 General UNII Test Procedures New Rules v01r01". The RF output of the EUT was connected to the input port of Power meter using an attenuator. The graph and data captured from power meter and compared with the limits specified in the standard.

5.3.3.5 MEASUREMENT GRAPHS / DATA

5.3.3.5.1 40 MHz MODULATION BANDWIDTH FOR 17 dBi POWER SETTINGS

LOW CHANNEL_5750 MHz



Figure 31 Maximum Conducted Output power measured at Ch.0 & Ch.1

MID CHANNEL_5775 MHz

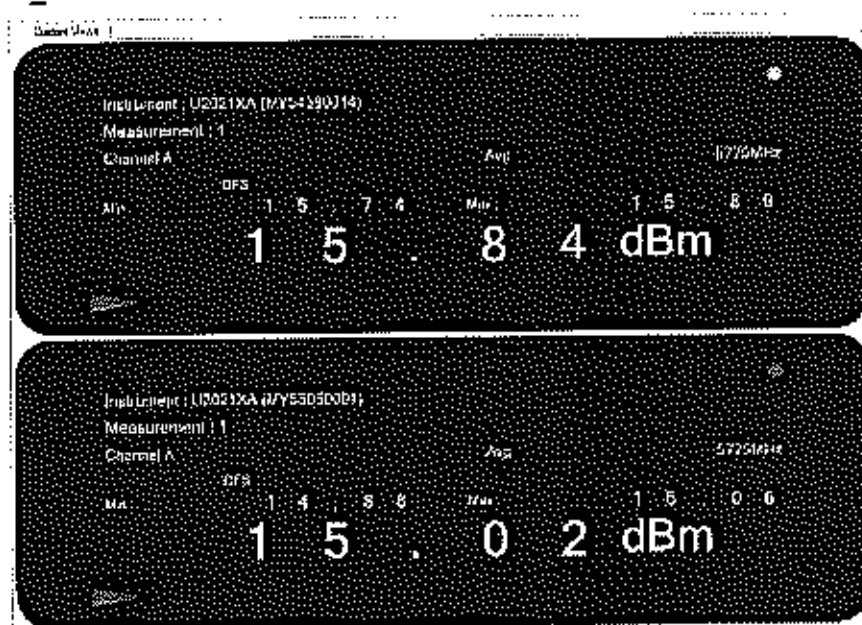


Figure 32 Maximum Conducted Output power measured at Ch.0 & Ch.1

HIGH CHANNEL_5825 MHz



Figure 33 Maximum Conducted Output power measured at Ch.0 & Ch.1

5.3.3.5.2 40 MHz MODULATION BANDWIDTH FOR 6 dBi ANTENNA CONDITION LOW CHANNEL_5750 MHz

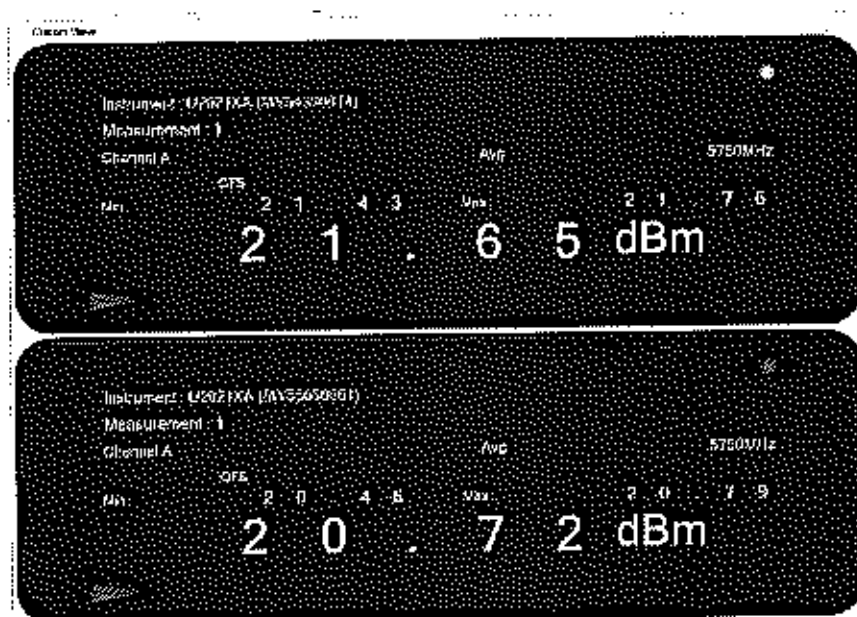


Figure 34 Maximum Conducted Output power measured at Ch.0 & Ch.1

MID CHANNEL_5775 MHz



Figure 35 Maximum Conducted Output power measured at Ch.0 & Ch.1

HIGH CHANNEL_5825 MHz

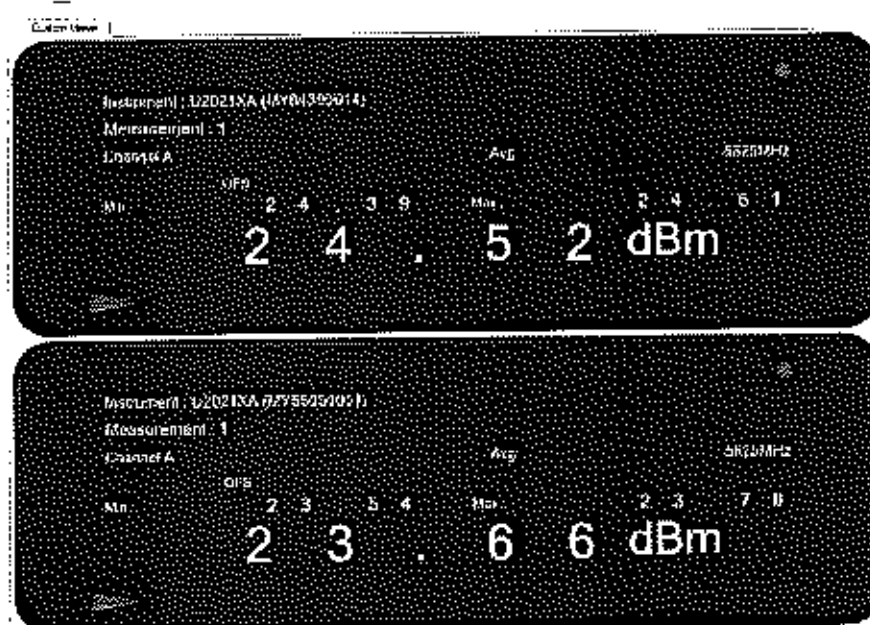


Figure 36 Maximum Conducted Output power measured at Ch.0 & Ch.1

5.3.3.5.3 5 MHz MODULATION BANDWIDTH FOR 17 dBi ANTENNA CONDITION

LOW CHANNEL_5735 MHz



Figure 37 Maximum Conducted Output power measured at Ch.0 & Ch.1

MID CHANNEL_5775 MHz



Figure 38 Maximum Conducted Output power measured at Ch.0 & Ch.1

HIGH CHANNEL_5840 MHz

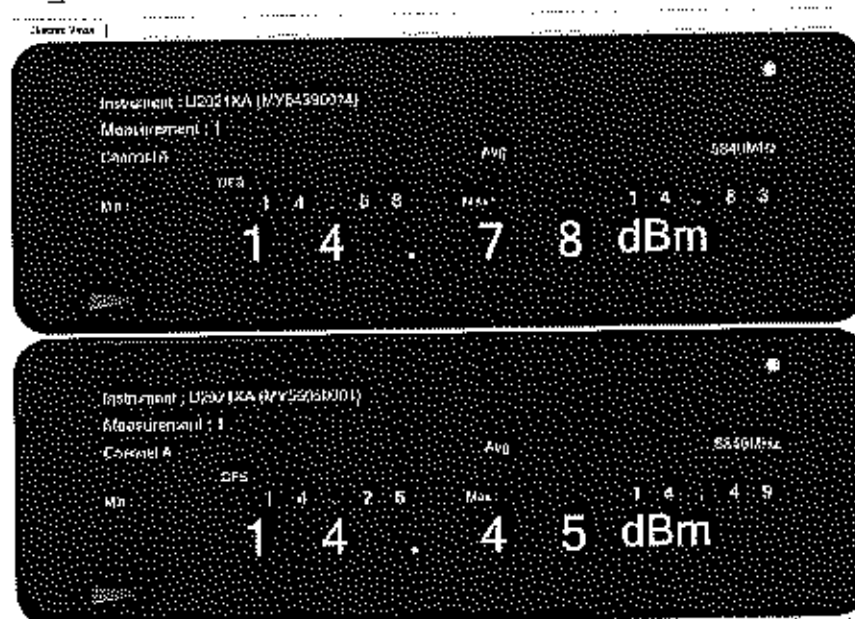


Figure 39 Maximum Conducted Output power measured at Ch.0 & Ch.1

5.3.3.5.4 5 MHz MODULATION BANDWIDTH FOR 6 dB ANTENNA CONDITION LOW CHANNEL_5735 MHz

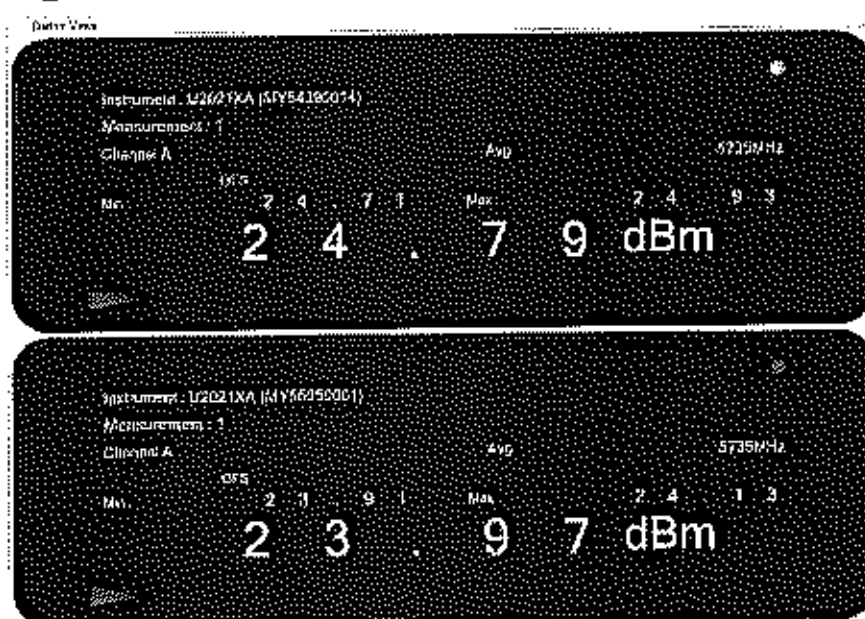


Figure 40 Maximum Conducted Output power measured at Ch.0 & Ch.1

MID CHANNEL_5775 MHz

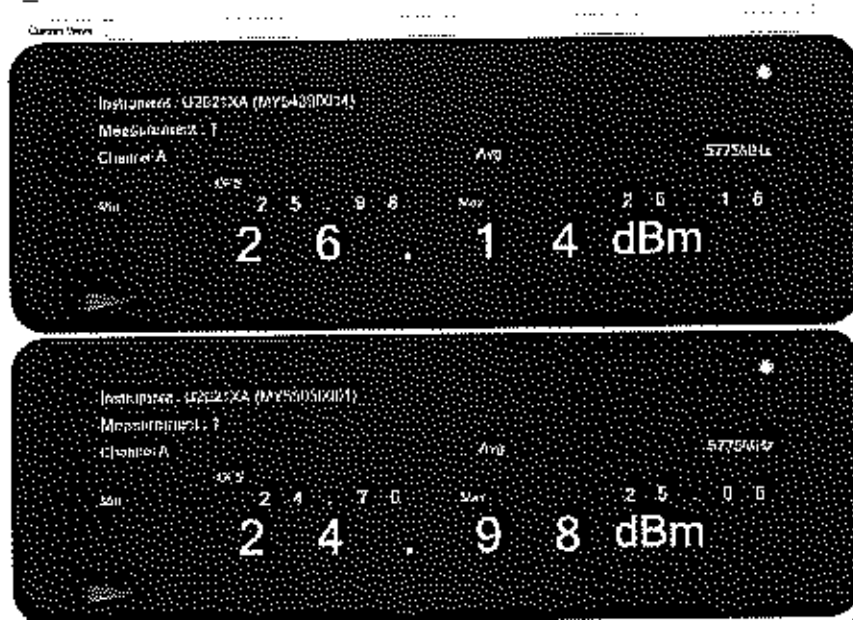


Figure 41 Maximum Conducted Output power measured at Ch.0 & Ch.1

HIGH CHANNEL_5840 MHz

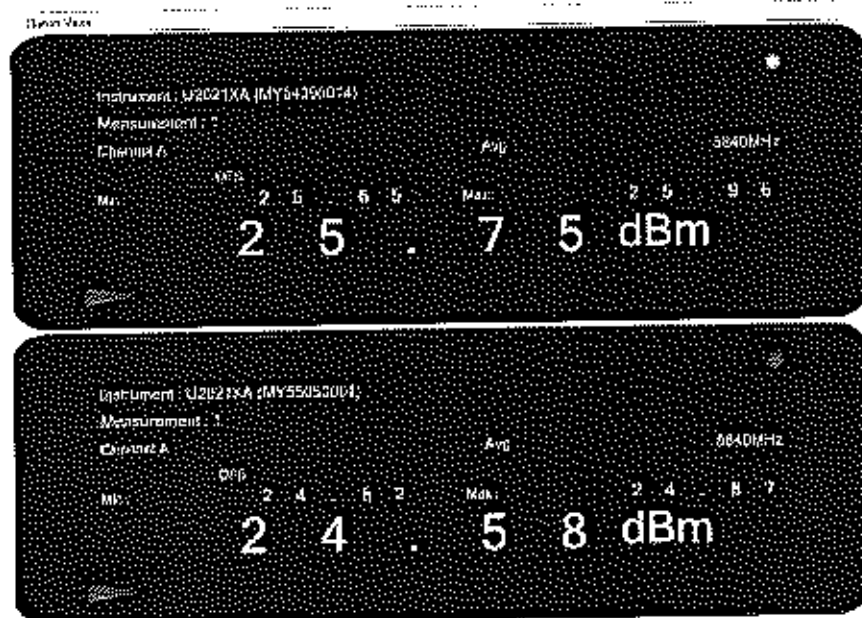


Figure 42 Maximum Conducted Output power measured at Ch.0 & Ch.1

5.3.3.6 RESULT

Maximum Conducted Output Power for all channels in both 40 MHz & 5 MHz modulation bandwidth is within the specified limits. Refer below table for consolidated data.

USING 17 dBi ANTENNA

Modulation Bandwidth (MHz)	Antenna path	Channel Frequency (MHz)	Recorded value (dBm)
40	Ch. 0	5750	15.93
40	Ch. 0	5775	15.84
40	Ch. 0	5825	15.80
40	Ch. 1	5750	15.07
40	Ch. 1	5775	15.02
40	Ch. 1	5825	15.36
5	Ch. 0	5735	15.52
5	Ch. 0	5775	15.86
5	Ch. 0	5840	14.78
5	Ch. 1	5735	14.74
5	Ch. 1	5775	14.77
5	Ch. 1	5840	14.45

Table 5 Max RF out power for 17 dBi configuration

Modulation Bandwidth (MHz)	Antenna path	Channel Frequency (MHz)	Consolidated Power (dBm)	Limit (dBm)	Result
40	Ch. 0 & Ch. 1	5750	18.53	19	PASS
40	Ch. 0 & Ch. 1	5775	18.45	19	PASS
40	Ch. 0 & Ch. 1	5825	18.43	19	PASS
5	Ch. 0 & Ch. 1	5735	18.15	19	PASS
5	Ch. 0 & Ch. 1	5775	18.35	19	PASS
5	Ch. 0 & Ch. 1	5840	17.62	19	PASS

Table 6 Consolidated values across channels and final power for 17 dBi configuration

USING 6 dBi ANTENNA CONDITION

Modulation Bandwidth (MHz)	Antenna path	Channel Frequency (MHz)	Recorded value (dBm)
40	Ch. 0	5750	21.65
40	Ch. 0	5775	25.78
40	Ch. 0	5825	24.52
40	Ch. 1	5750	20.72
40	Ch. 1	5775	24.87
40	Ch. 1	5825	23.66
5	Ch. 0	5735	24.79
5	Ch. 0	5775	26.14
5	Ch. 0	5840	25.75
5	Ch. 1	5735	23.97
5	Ch. 1	5775	24.98
5	Ch. 1	5840	24.58

Table 7 Max RF out power for 6 dBi configuration

Modulation Bandwidth (MHz)	Antenna path	Channel Frequency (MHz)	Consolidated Power (dBm)	Limit (dBm)	Result
40	Ch. 0 & Ch. 1	5750	24.22	30	PASS
40	Ch. 0 & Ch. 1	5775	28.35	30	PASS
40	Ch. 0 & Ch. 1	5825	27.12	30	PASS
5	Ch. 0 & Ch. 1	5735	27.41	30	PASS
5	Ch. 0 & Ch. 1	5775	28.60	30	PASS
5	Ch. 0 & Ch. 1	5840	28.21	30	PASS

Table 8 Consolidated values across channels and final power for 6 dBi configuration

The recorded power in dBm was converted into Watt, and then added and convert the result back to dBm

$dBm \text{ to } mW = \log(mW) * 10$

$mW \text{ to } dBm = 10^{(dBm/10)}$

5.3.4 POWER SPECTRAL DENSITY

5.3.4.1 TEST SPECIFICATION

Test Standard	47 CFR, Part 15, Subpart E Feb 2016
Test Procedure	789033 D2 General U-NII Test Procedures New Rule V01r01
Frequency Range	5725 MHz to 5850 MHz
Resolution Bandwidth	1 MHz
Video Bandwidth	3 MHz
Sweep Time	1 ms
Attenuation	Auto
Test Mode	Conducted
Detector	RMS
Input Voltage	120 V AC
Input Frequency	60 Hz
Temperature	21.0 °C
Humidity	54.0 %
Tested By	Nishanth/Suresh GN
Test Date	25 th Jan 2016

5.3.4.2 LIMITS

Standard	Reference section	Frequency range	Limit
47 CFR, Part 15, Subpart E Feb 2016	§15.407 a(3)	5725 MHz to 5850 MHz	< 30 dBm in any 500 kHz band

5.3.4.3 TEST SETUP

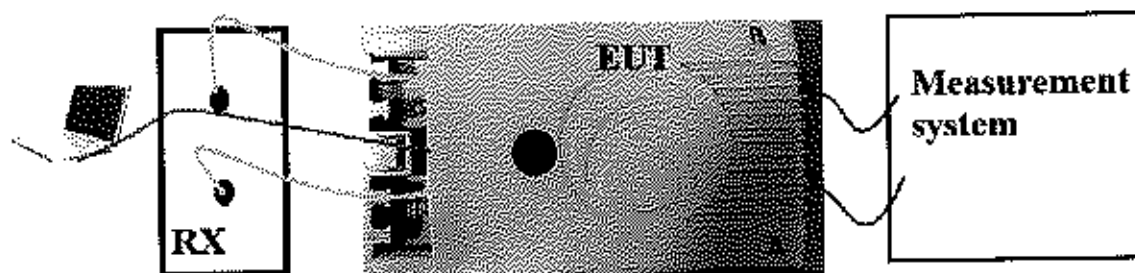


Figure 43 Typical test setup for Conducted Test

5.3.4.4 TEST PROCEDURE

The Conducted test was performed using the Spectrum analyzer. Measurements were done as per Section II F (PSD) of KDB "789033 D02 General UNII Test Procedures New Rules v01r01". The RF output of the EUT was connected to the input port of Spectrum analyzer using an attenuator. The graph and data captured from spectrum analyzer and compared with the limits specified in the standard.

5.3.4.5 MEASUREMENT GRAPHS / DATA

5.3.4.5.1 40 MHZ MODULATION BANDWIDTH FOR 17 dBi POWER SETTINGS

LOW CHANNEL_5750 MHz

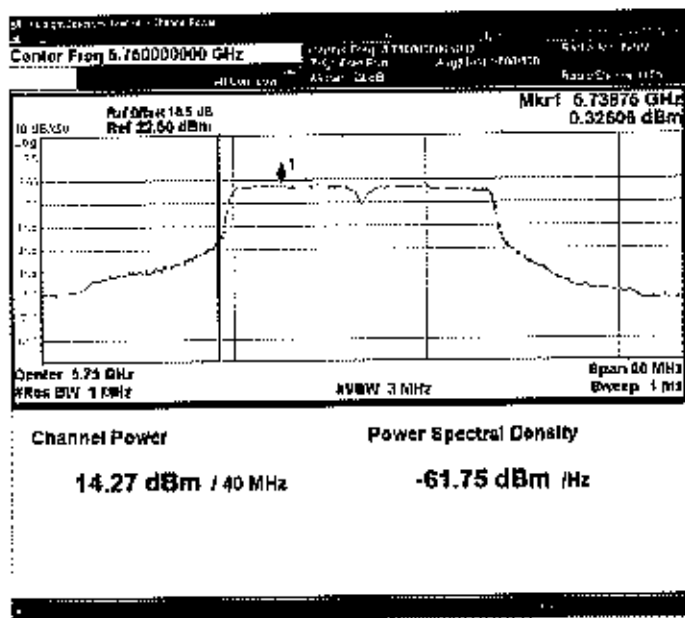


Figure 44 Power Spectral density measured at Ch. 0

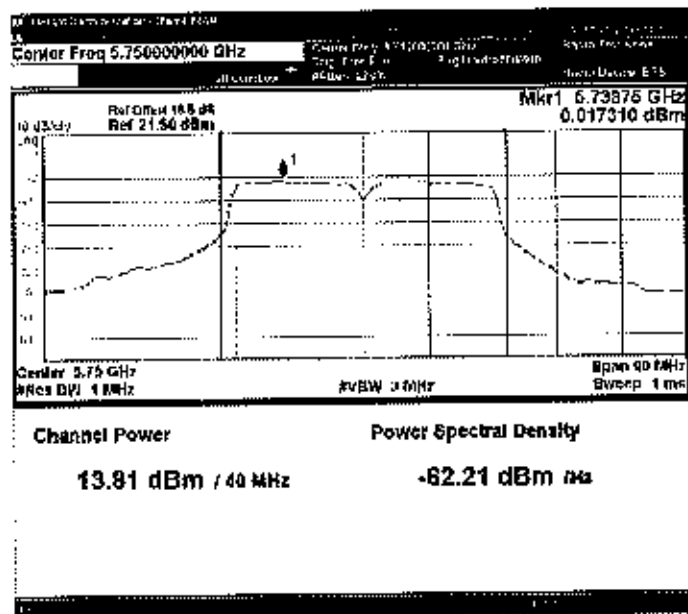


Figure 45 Power Spectral density measured at Ch. 1

MID CHANNEL_5775 MHz

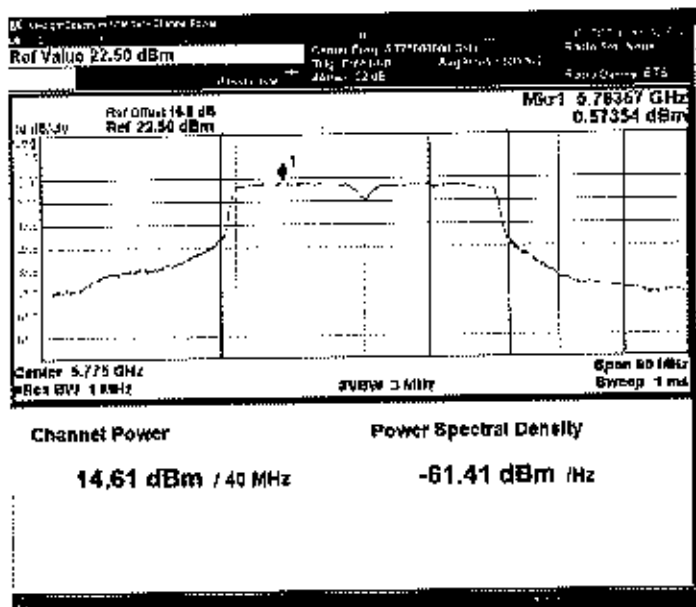


Figure 46 Power Spectral density measured at Ch. 0

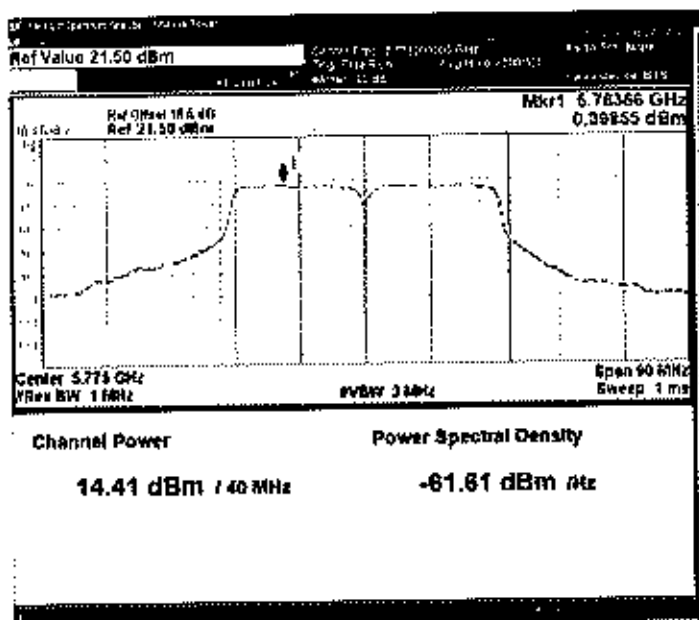


Figure 47 Power Spectral density measured at Ch. 1

HIGH CHANNEL_5825 MHz

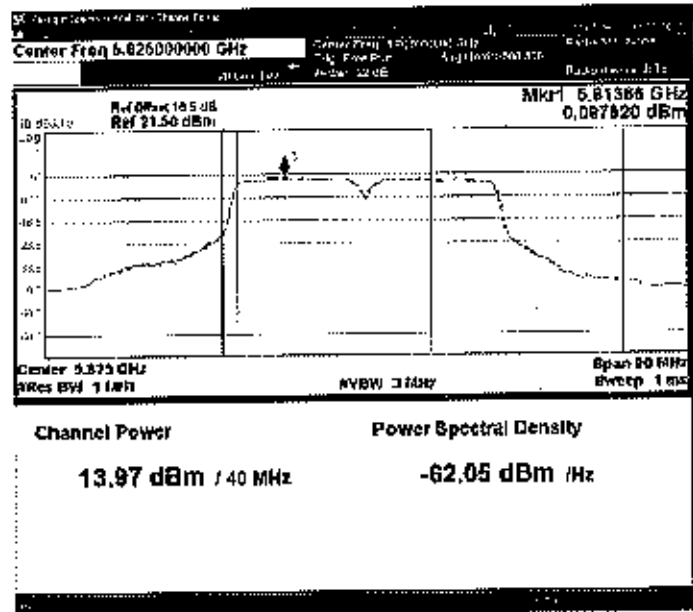


Figure 48 Power Spectral density measured at Ch. 0

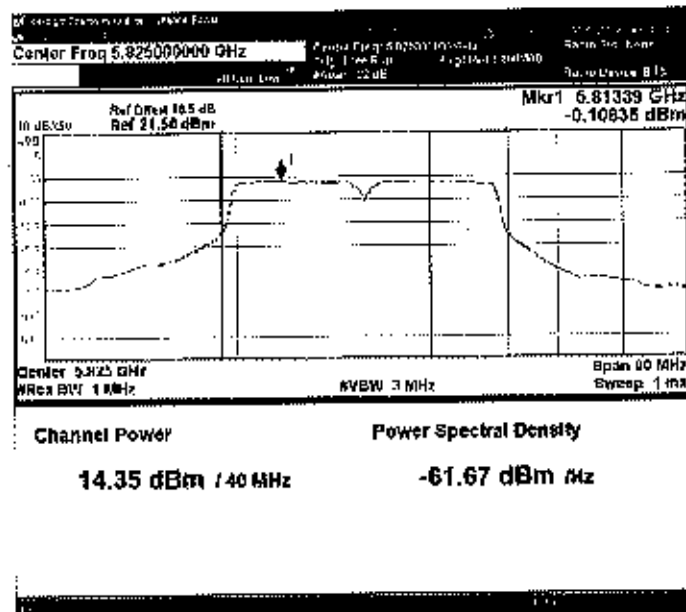


Figure 49 Power Spectral density measured at Ch. 1

5.3.4.5.2 40 MHz MODULATION BANDWIDTH 6 dBi ANTENNA CONDITION LOW CHANNEL_5750 MHz

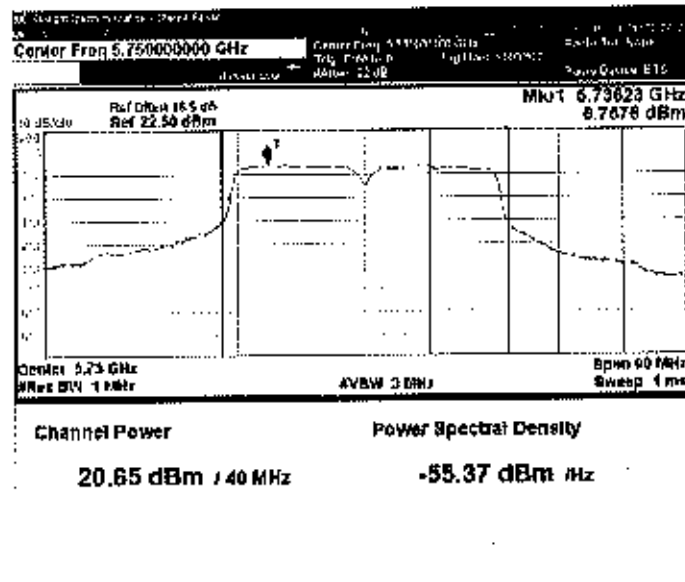


Figure 50 Power Spectral density measured at Ch. 0

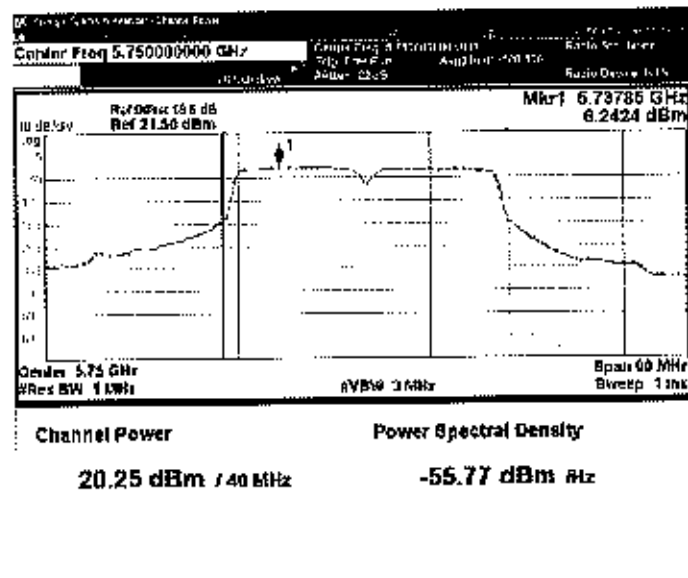


Figure 51 Power Spectral density measured at Ch. 1

MID CHANNEL_5775 MHz

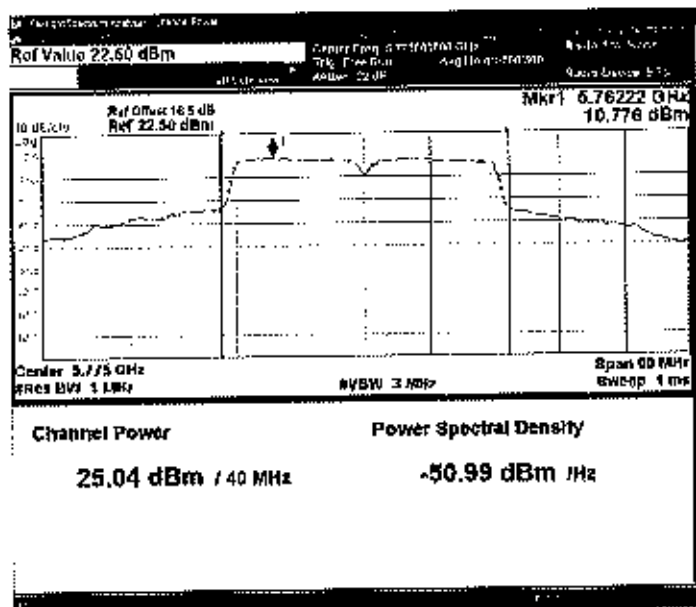


Figure 52 Power Spectral density measured at Ch. 0

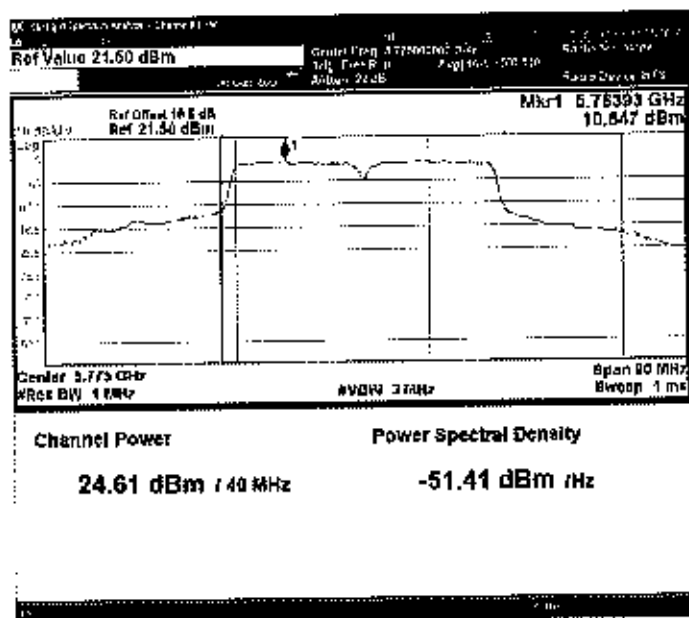


Figure 53 Power Spectral density measured at Ch. 1

HIGH CHANNEL_5825 MHz

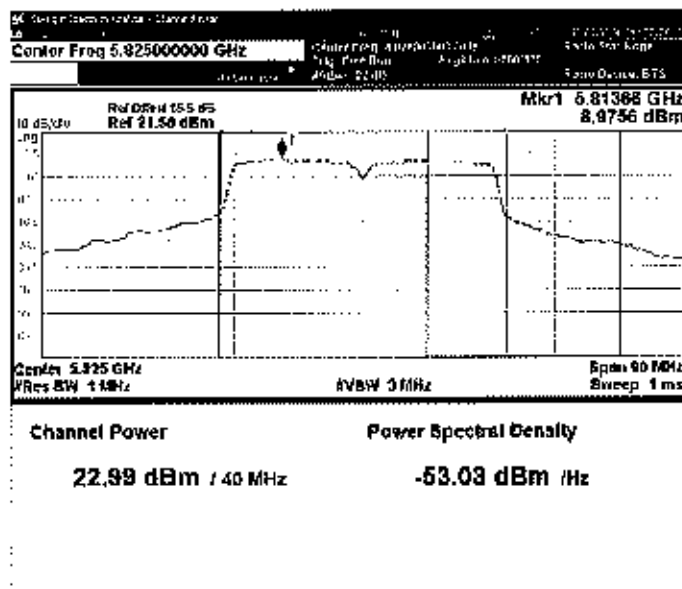


Figure 54 Power Spectral density measured at Ch. 0

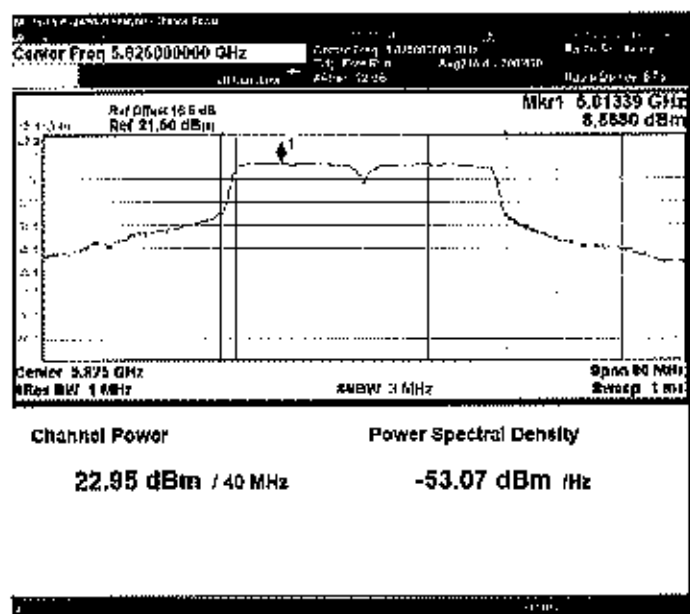


Figure 55 Power Spectral density measured at Ch. 1

5.3.4.5.3 5 MHz MODULATION BANDWIDTH 17 dBi ANTENNA CONDITION

LOW CHANNEL_5735 MHz

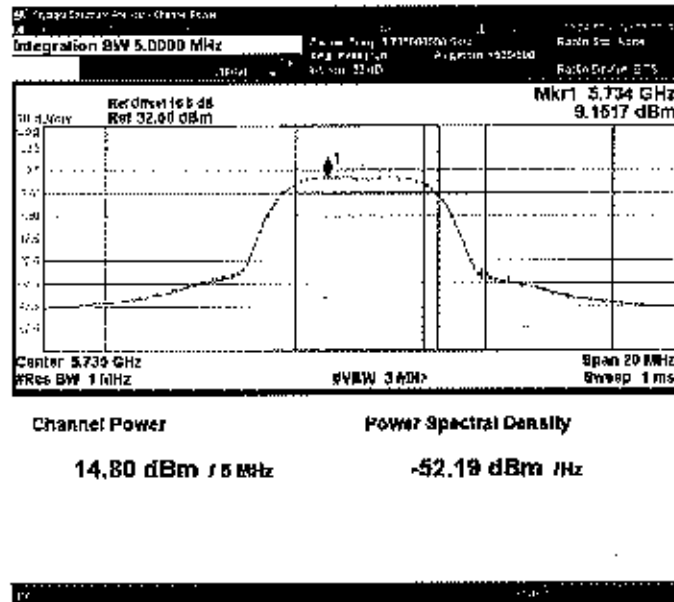


Figure 56 Power Spectral density measured at Ch. 0

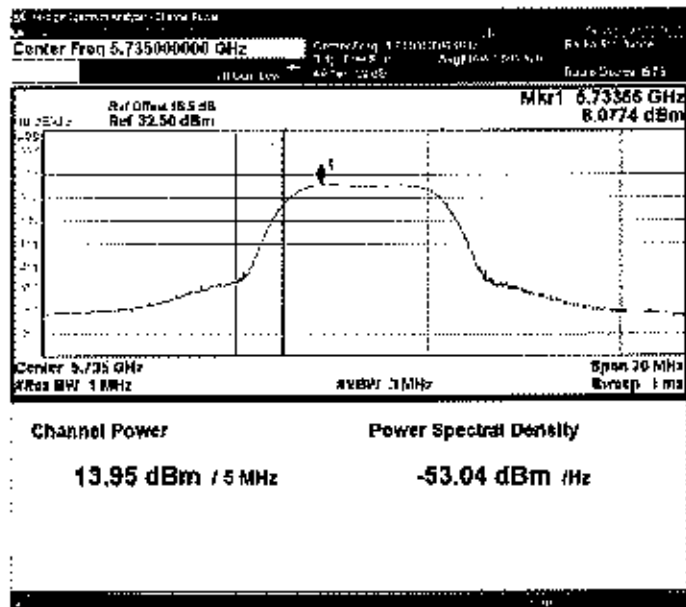


Figure 57 Power Spectral density measured at Ch. 1

MID CHANNEL_5775 MHz

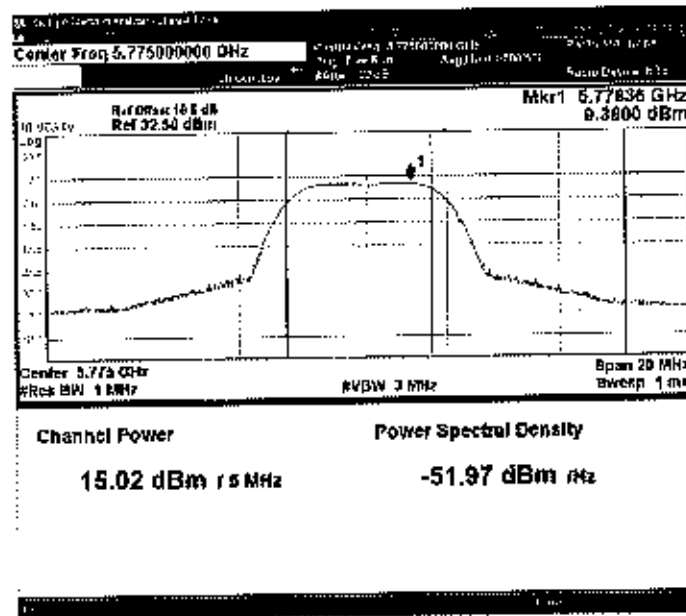


Figure 58 Power Spectral density measured at Ch. 0

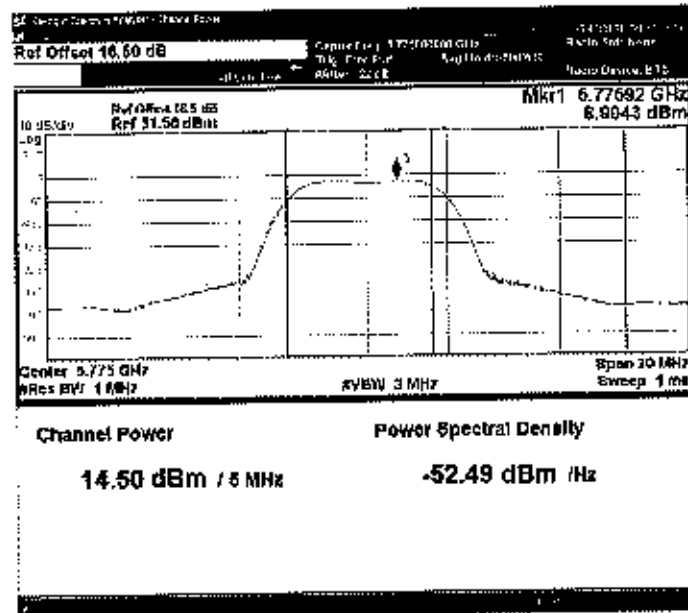


Figure 59 Power Spectral density measured at Ch. 1

III HIGH CHANNEL_5840 MHz

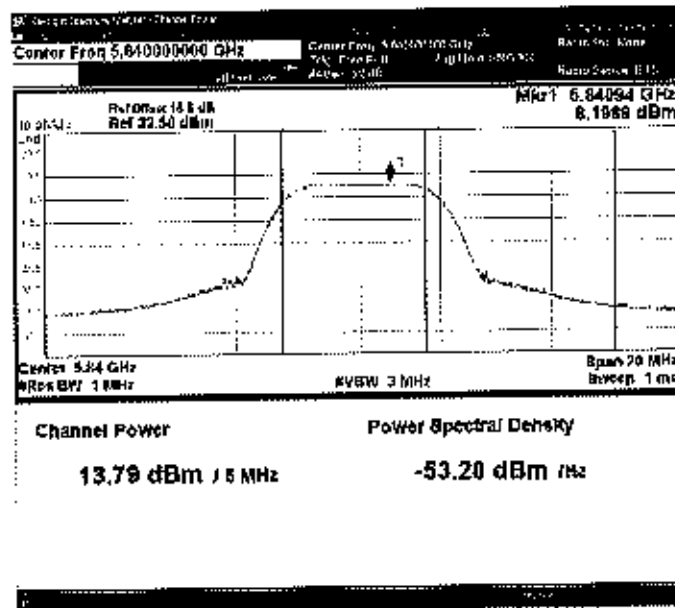


Figure 60 Power Spectral density measured at Ch. 0

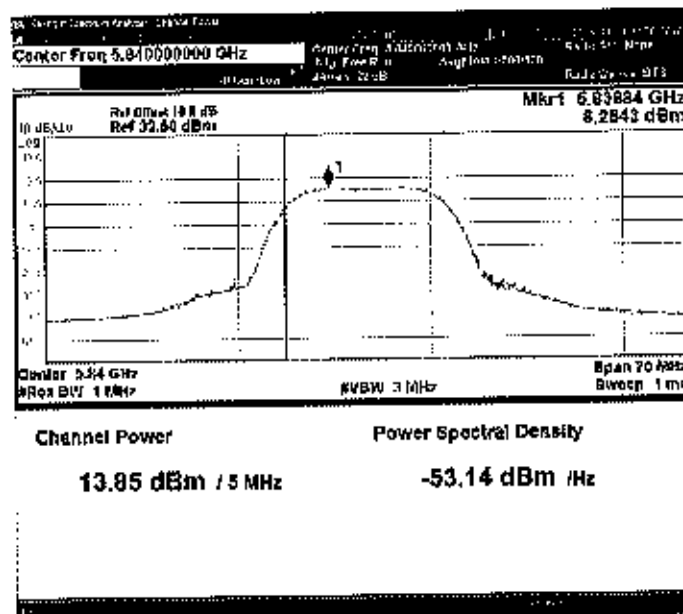


Figure 61 Power Spectral density measured at Ch. 1

5.3.4.5.4 5 MHz MODULATION BANDWIDTH 6 dBi ANTENNA CONDITION LOW CHANNEL_5735 MHz

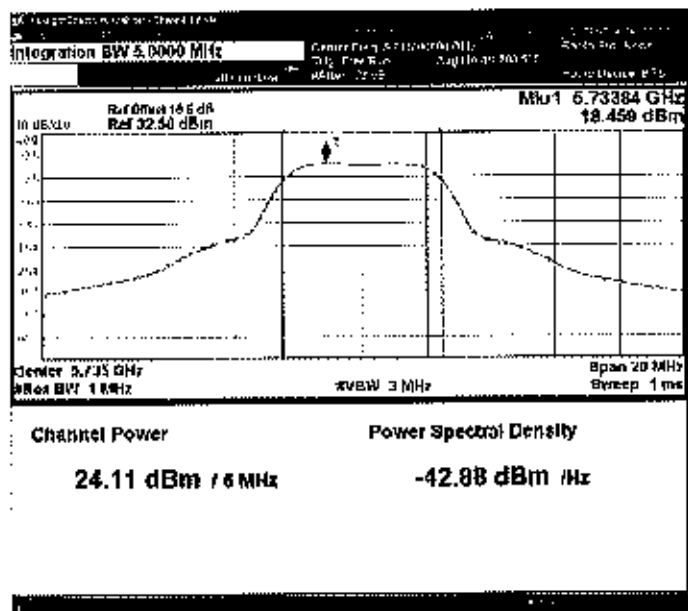


Figure 62 Power Spectral density measured at Ch. 0

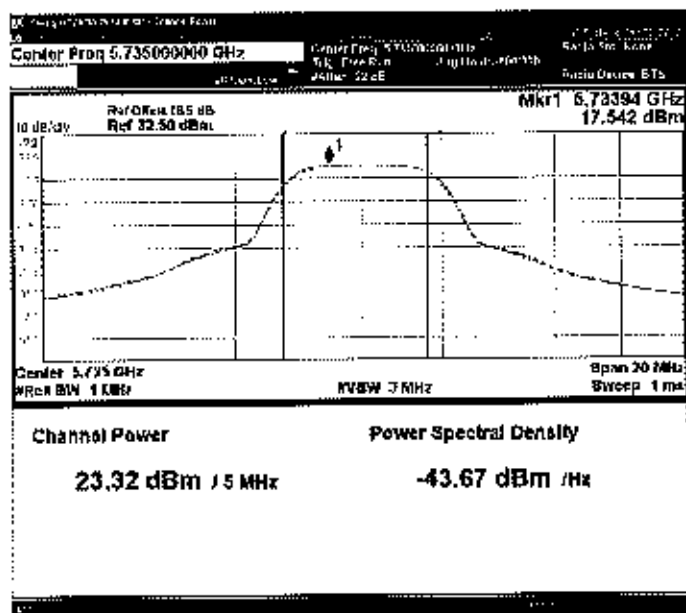


Figure 63 Power Spectral density measured at Ch. 1

MID CHANNEL_5775 MHz

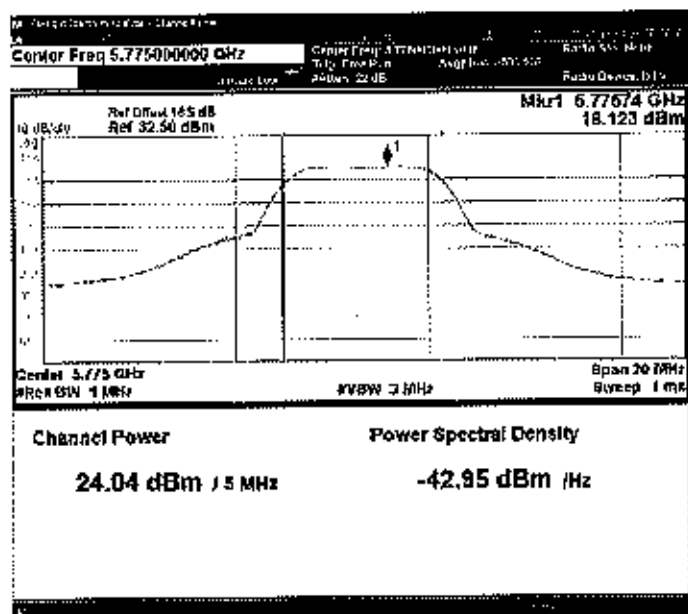


Figure 64 Power Spectral density measured at Ch. 0

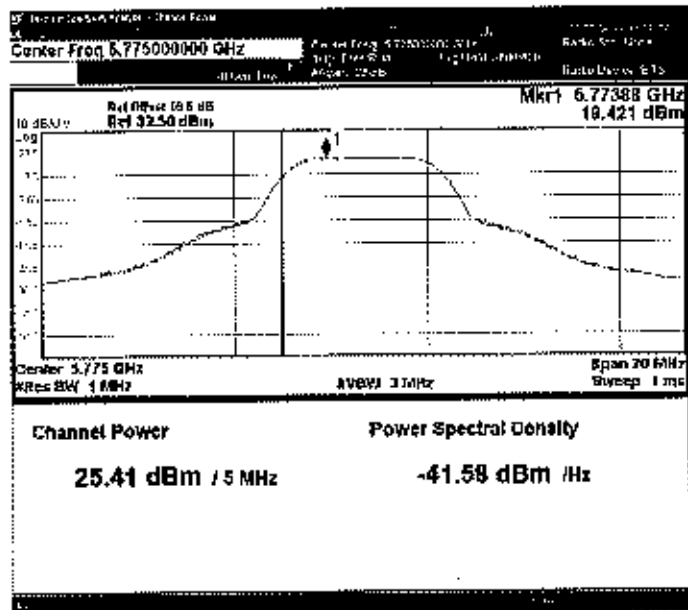


Figure 65 Power Spectral density measured at Ch. 1

HIGH CHANNEL_5840 MHz

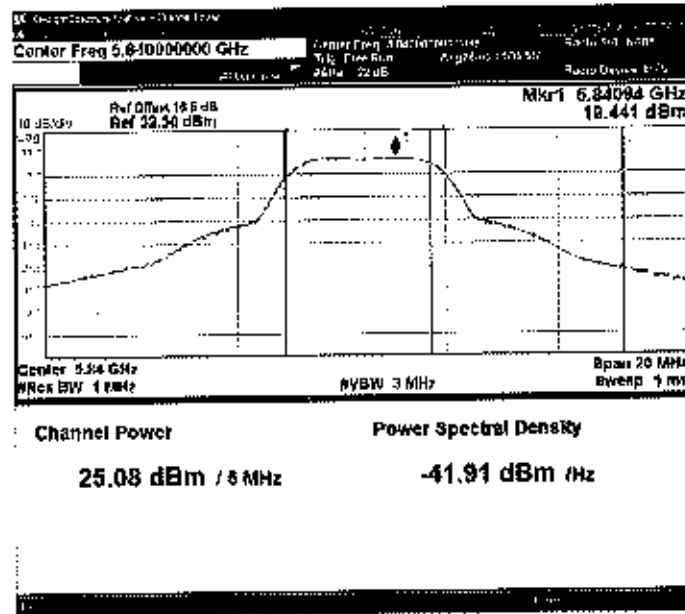


Figure 66 Power Spectral Density measured at Ch. 0

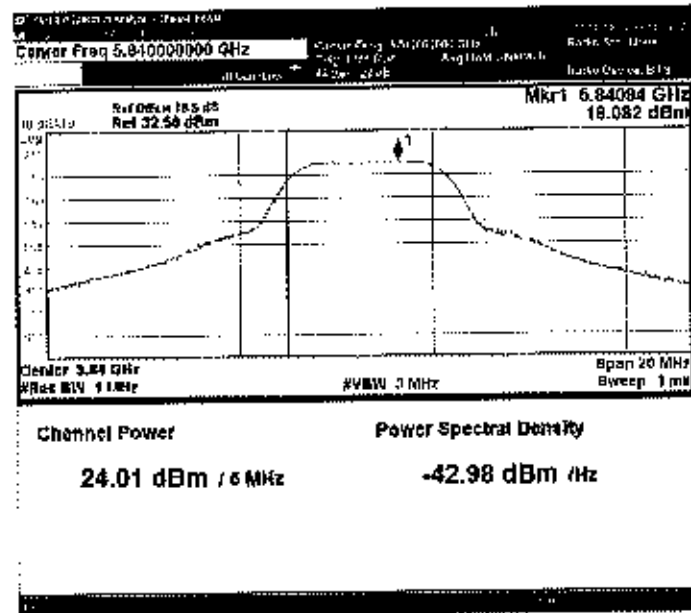


Figure 67 Power Spectral density measured at Ch. 1

5.3.4.6 RESULT

Power Spectral Density for all channels in both 40 MHz & 5 MHz Modulation Bandwidths is within the Specified limit. Refer below table for consolidated result.

17DBI ANTENNA CONDITION

Modulation Bandwidth (MHz)	Antenna path	Channel Frequency (MHz)	Recorded value (dBm/Hz)	Recorded value (dBm/500kHz)	Limit (dBm/500kHz)	Result
40	Ch. 0	5750	-61.75	-4.77	30	Pass
40	Ch. 0	5775	-61.41	-4.43	30	Pass
40	Ch. 0	5825	-62.05	-5.07	30	Pass
40	Ch. 1	5750	-62.21	-5.23	30	Pass
40	Ch. 1	5775	-61.61	-4.63	30	Pass
40	Ch. 1	5825	-61.67	-4.69	30	Pass
5	Ch. 0	5735	-52.19	4.79	30	Pass
5	Ch. 0	5775	-51.97	5.01	30	Pass
5	Ch. 0	5840	-53.20	3.78	30	Pass
5	Ch. 1	5735	-53.04	3.94	30	Pass
5	Ch. 1	5775	-52.49	4.49	30	Pass
5	Ch. 1	5840	-53.14	3.84	30	Pass

Table 9 Result of PSD for 17 dBi configuration for both 40 MHz and 5 MHz modulation bandwidth

6DBI ANTENNA CONDITION

Modulation Bandwidth (MHz)	Antenna path	Channel Frequency (MHz)	Recorded value (dBm/Hz)	Recorded value (dBm/500kHz)	Limit (dBm/500kHz)	Result
40	Ch. 0	5750	-55.37	1.61	30	Pass
40	Ch. 0	5775	-50.99	5.99	30	Pass
40	Ch. 0	5825	-53.03	3.95	30	Pass
40	Ch. 1	5750	-55.77	1.21	30	Pass
40	Ch. 1	5775	-51.41	5.57	30	Pass
40	Ch. 1	5825	-53.07	3.91	30	Pass
5	Ch. 0	5735	-42.88	14.1	30	Pass
5	Ch. 0	5775	-42.95	14.03	30	Pass
5	Ch. 0	5840	-41.91	15.07	30	Pass
5	Ch. 1	5735	-43.67	13.31	30	Pass
5	Ch. 1	5775	-41.58	15.4	30	Pass
5	Ch. 1	5840	-42.98	14	30	Pass

Table 10 Result of PSD for 6dBi configuration for both 40 MHz and 5 MHz modulation bandwidth

$$dBm/500kHz = dBm/Hz + 10\log(500kHz)$$

5.3.5 OPERATING BAND EDGE MEASUREMENTS

5.3.5.1 TEST SPECIFICATION

Test Standard	47 CFR, Part 15, Subpart C Feb 2016
Test Procedure	ANSI C63.4-2014
Frequency Range	As applicable
Resolution Bandwidth	100 kHz
Video Bandwidth	300 kHz
Sweep Time	Auto
Attenuation	Auto
Test Mode	Conducted
Detector	Peak
Input Voltage	120 V AC
Input Frequency	60 Hz
Temperature	21.0 °C
Humidity	54.0 %
Tested By	Nishanth
Test Date	25 th Jan 2016

5.3.5.2 LIMITS

Standard	Reference section	Frequency range	Limit
47 CFR, Part 15, Subpart C Feb 2016	§15.247 (d)	5725 MHz to 5825 MHz	30 dB below the maximum in- band average PSD level

5.3.5.3 TEST SETUP

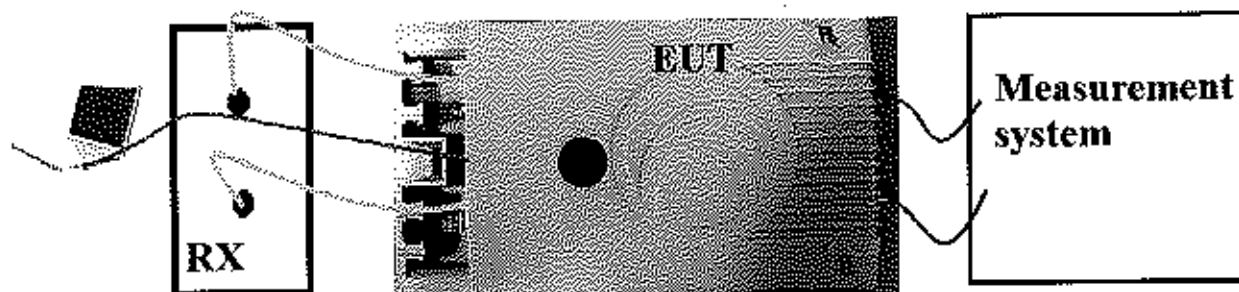


Figure 68: Typical test setup for Conducted Test setup

5.3.5.4 TEST PROCEDURE

The Conducted test was performed using the Spectrum analyzer. Measurements were done as per Section II G3 (d) of KDB “789033 D2 General II-NII Test Procedures New Rule V01r01”. 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.

5.3.5.5 MEASUREMENT GRAPHS / DATA

5.3.5.5.1 40 MHz MODULATION BANDWIDTH FOR 17 dBi POWER SETTINGS

LOW CHANNEL_5750 MHz

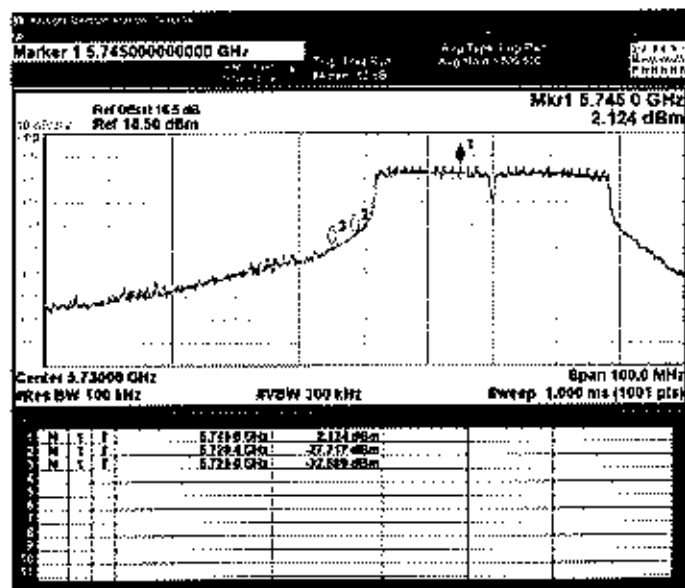


Figure 69: Band edge measured at Ch. 0-Average detector

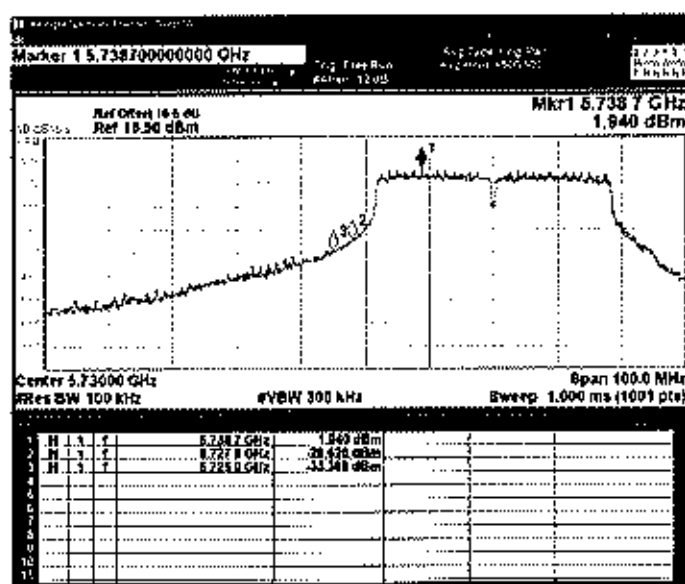


Figure 70: Band edge measured at Ch. 1-Average detector

MID CHANNEL_5775 MHz

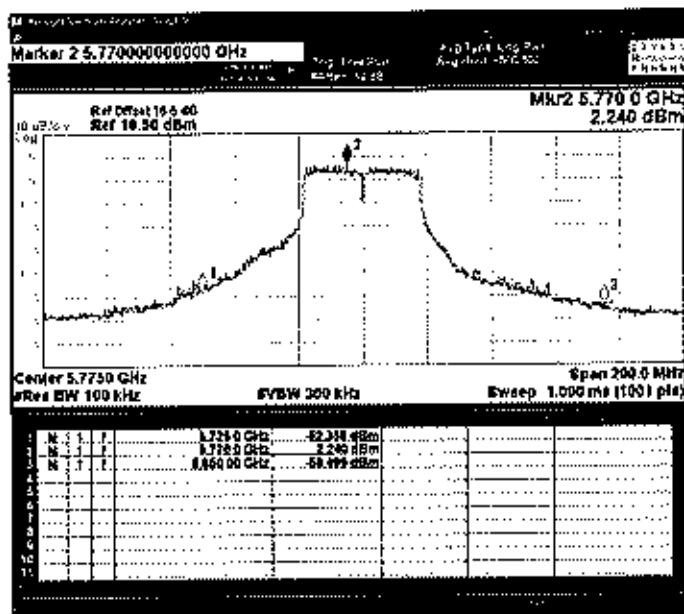


Figure 71: Band edge measured at Ch. 0-Average detector

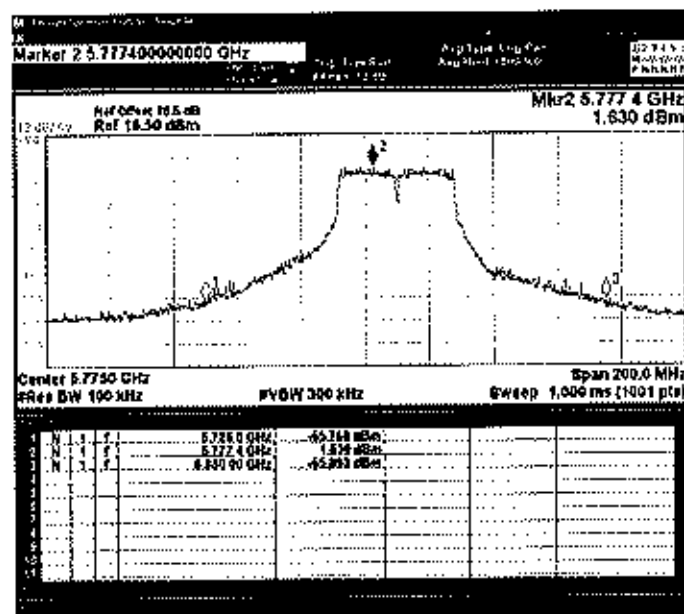


Figure 72: Band edge measured at Ch. 1-Average detector

HIGH CHANNEL_5775 MHz

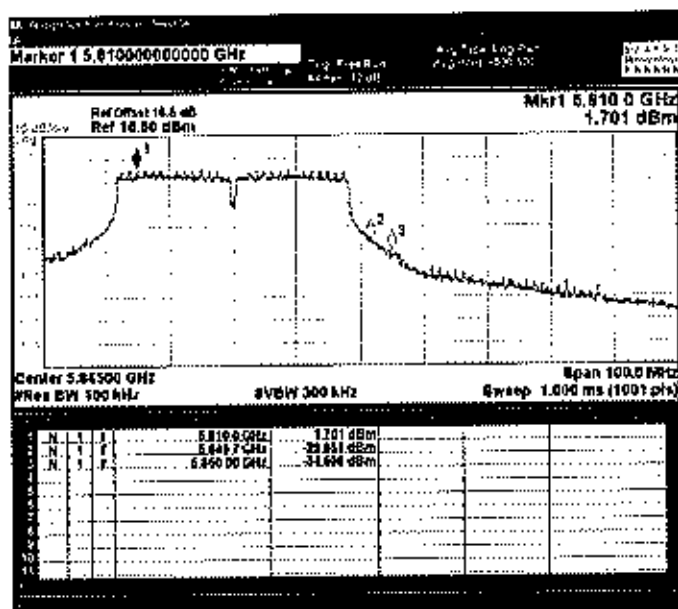


Figure 73: Band edge measured at Ch. 0-Average detector

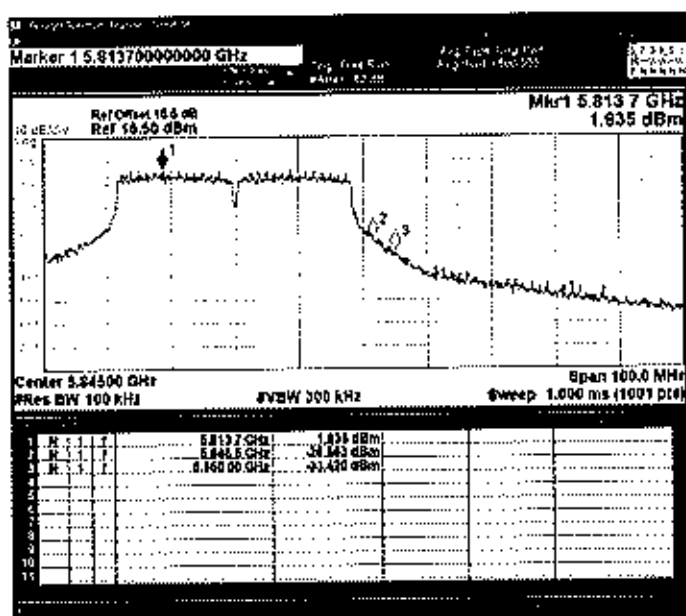


Figure 74: Band edge measured at Ch. 1-Average detector

5.3.5.5.2 40 MHz MODULATION BANDWIDTH 6 dBi ANTENNA CONDITION LOW CHANNEL_5750 MHz

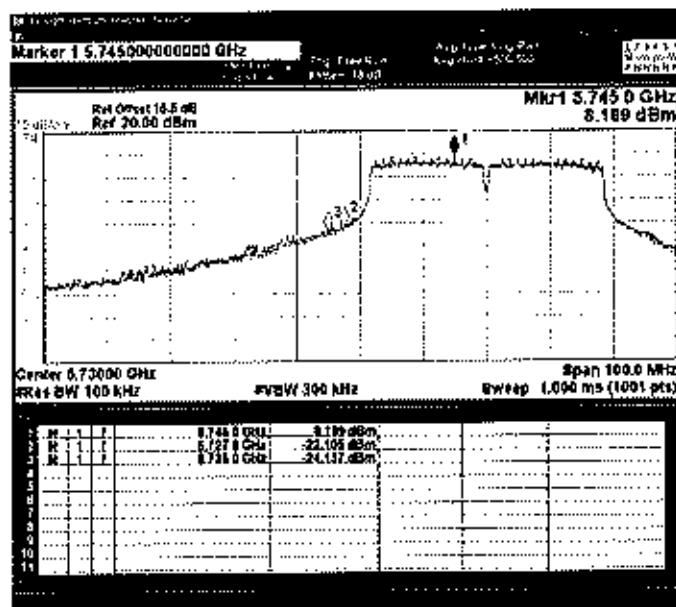


Figure 75: Hand edge measured at Ch. 0-Average detector

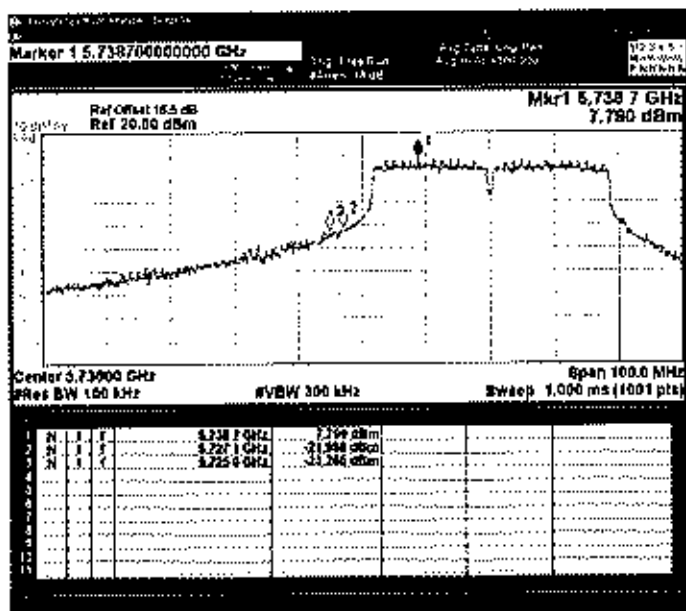


Figure 76: Hand edge measured at Ch. 1-Average detector

MID CHANNEL_5775 MHz

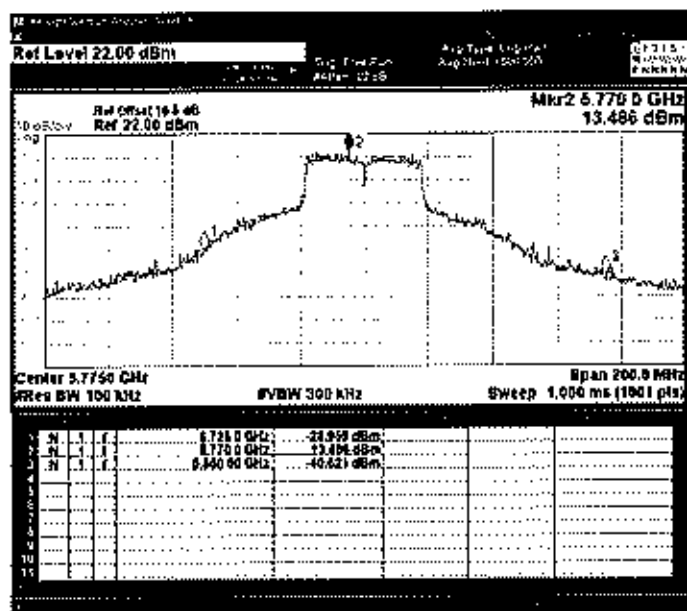


Figure 77: Band edge measured at Ch. 0-Average detector

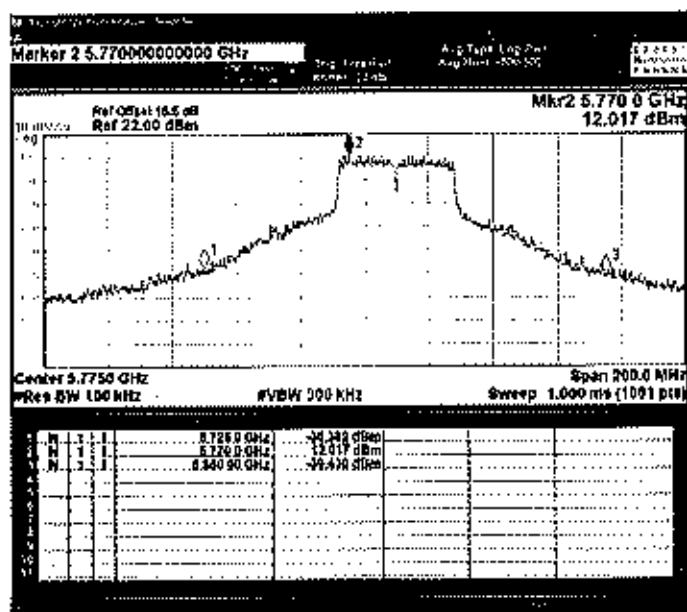


Figure 78: Band edge measured at Ch. 1-Average detector

HIGH CHANNEL_5775 MHz

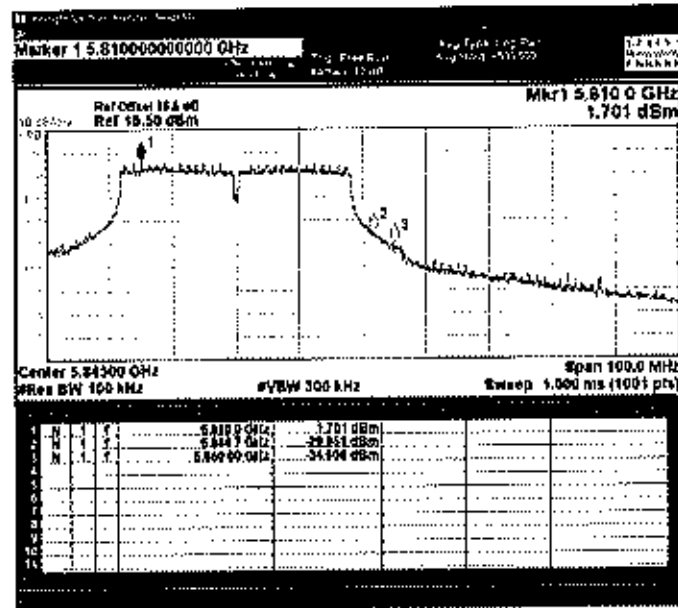


Figure 79: Band edge measured at Ch. 0-Average detector

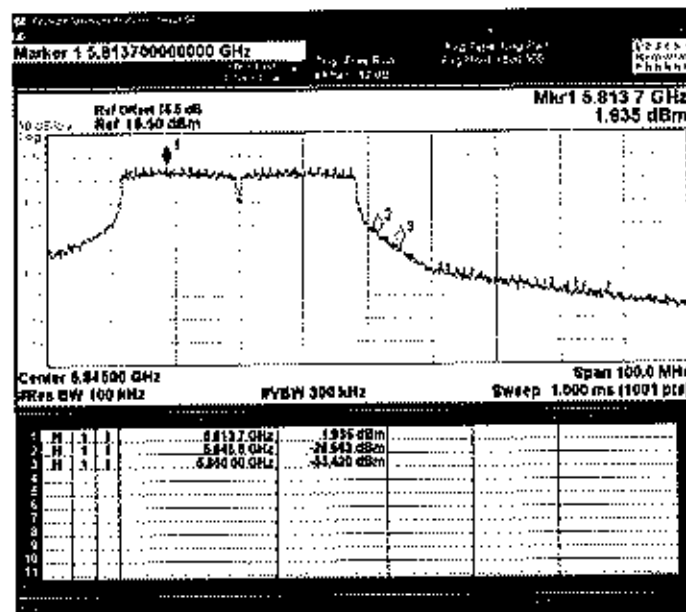


Figure 80: Band edge measured at Ch. 1-Average detector

5.3.5.5.3 5 MHz MODULATION BANDWIDTH 17 dBi ANTENNA CONDITION LOW CHANNEL_5735 MHz

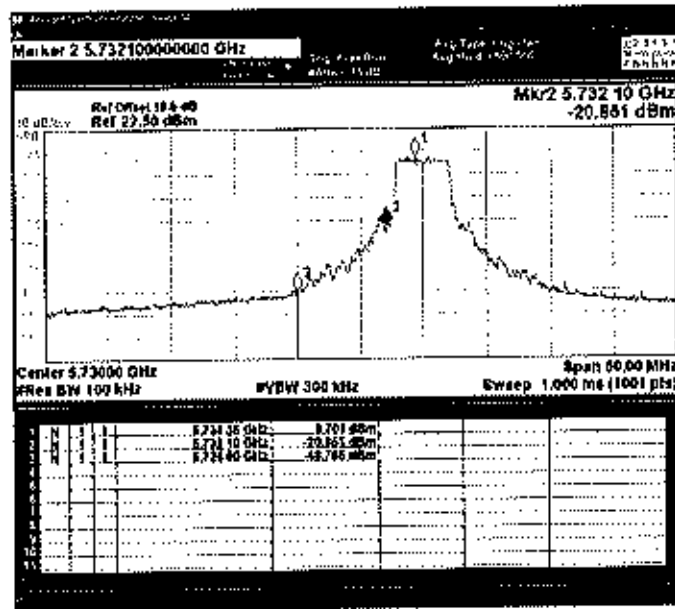


Figure 81: Band edge measured at Ch. 0-Average detector

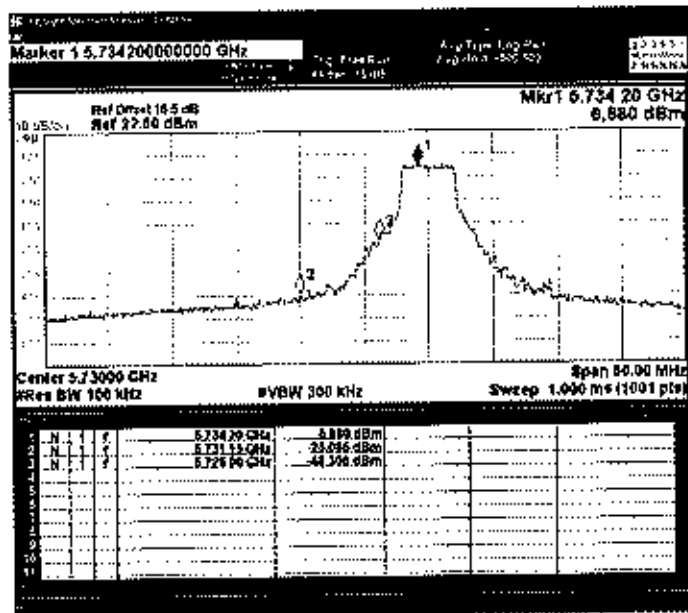


Figure 82: Band edge measured at Ch. 1-Average detector

MID CHANNEL_5775 MHz

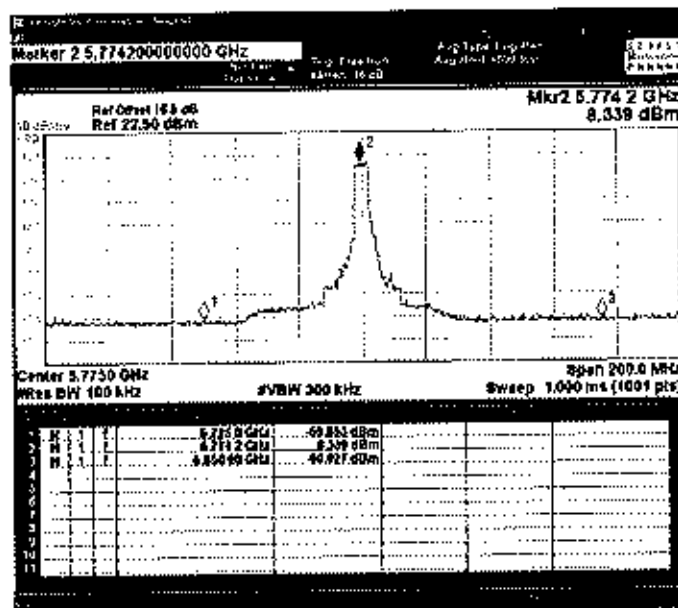


Figure 83: Band edge measured at Ch. 0-Average detector

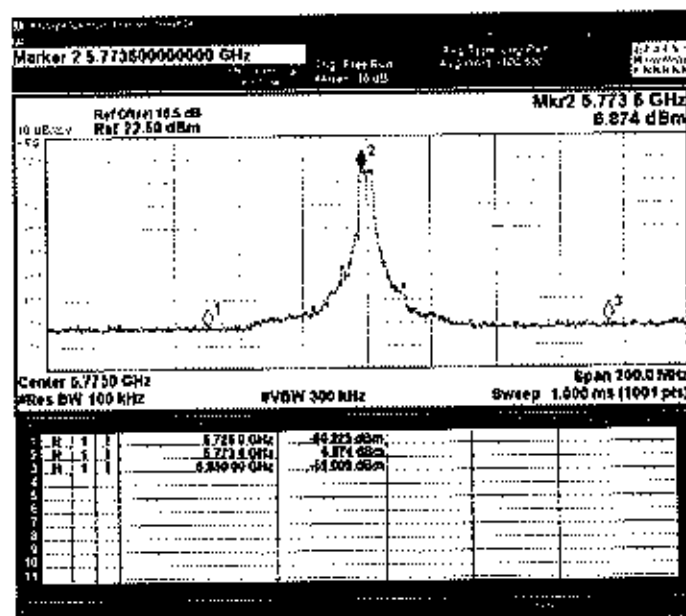


Figure 84: Band edge measured at Ch. 1-Average detector

HIGH CHANNEL_5840 MHz

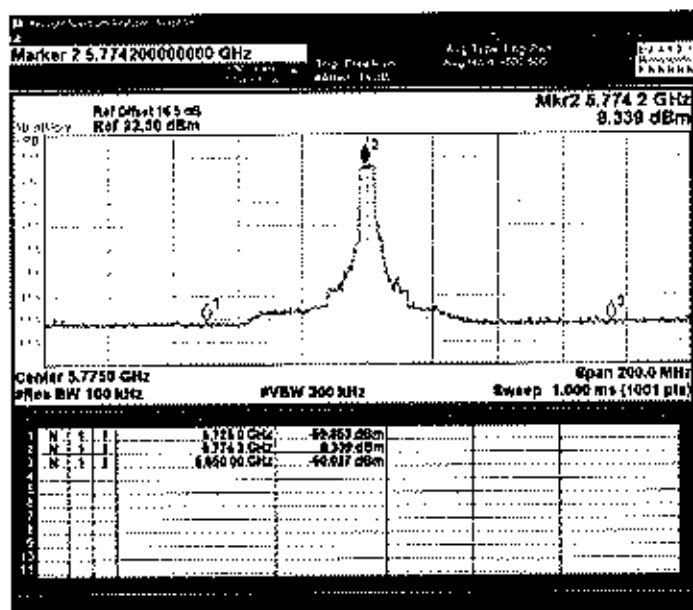


Figure 85: Band edge measured at Ch. 0-Average detector

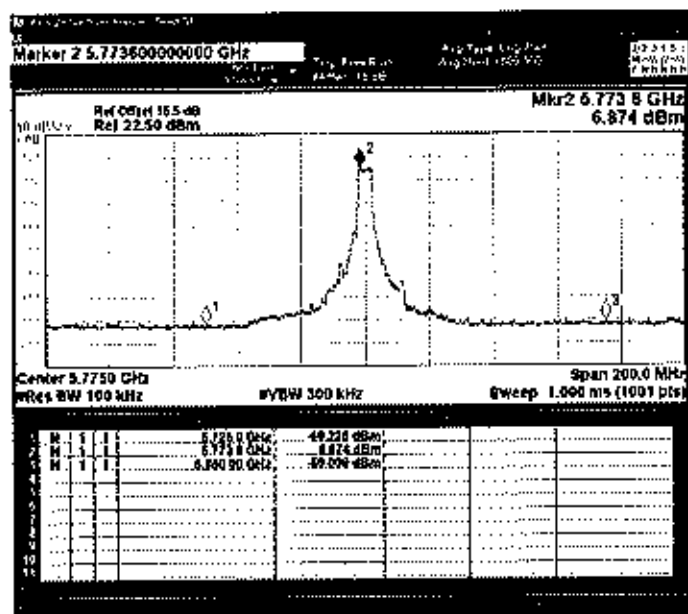


Figure 86: Band edge measured at Ch. 1-Average detector

5.3.5.5.4 5 MHz MODULATION BANDWIDTH 6 dBi ANTENNA CONDITION LOW CHANNEL_5735 MHz

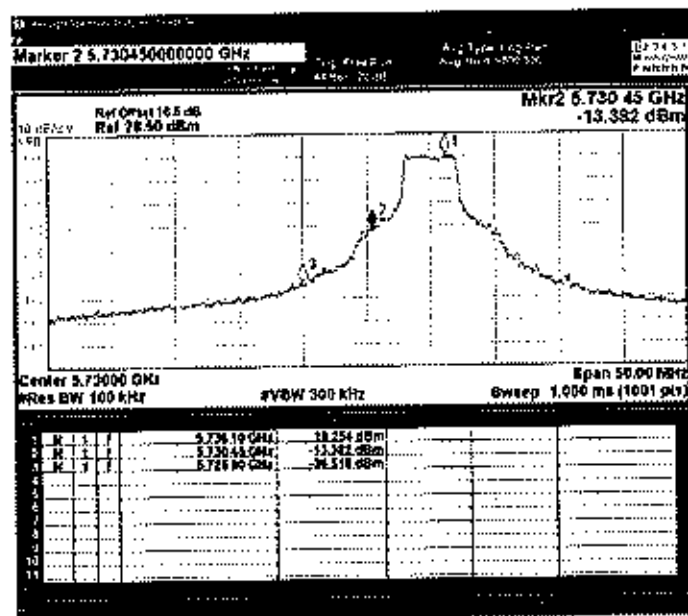


Figure 87: Band edge measured at Ch. 0-Average detector

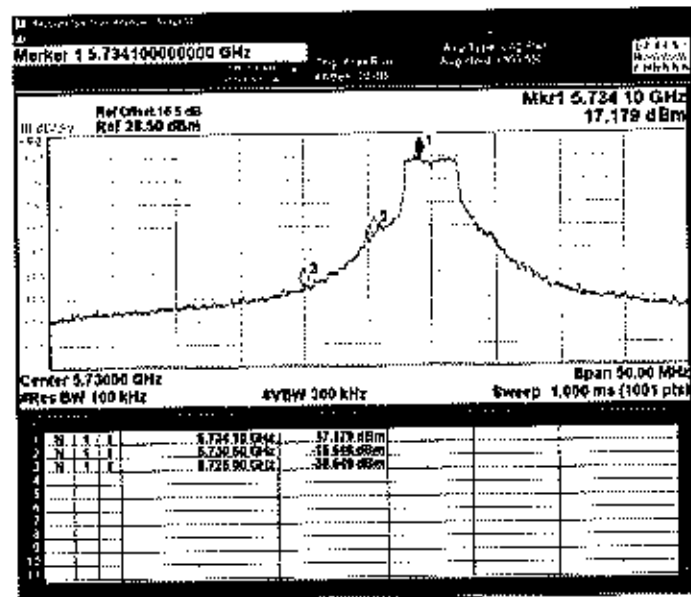


Figure 88: Band edge measured at Ch. 1-Average detector

MID CHANNEL_5775 MHz

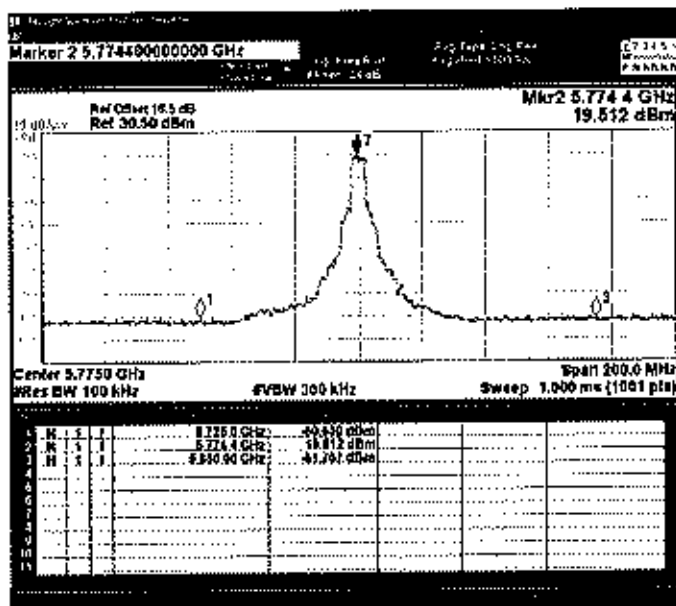


Figure 89: Band edge measured at Ch. 0-Average detector

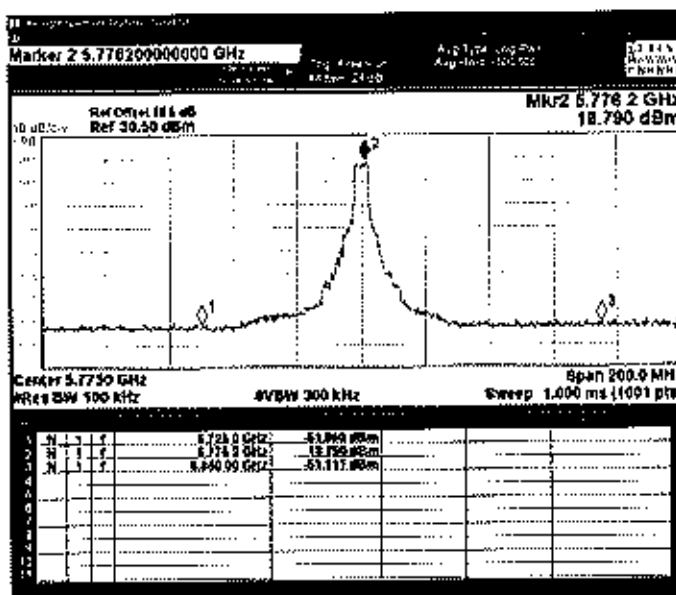


Figure 90: Band edge measured at Ch. 1-Average detector

HIGH CHANNEL_5840 MHz

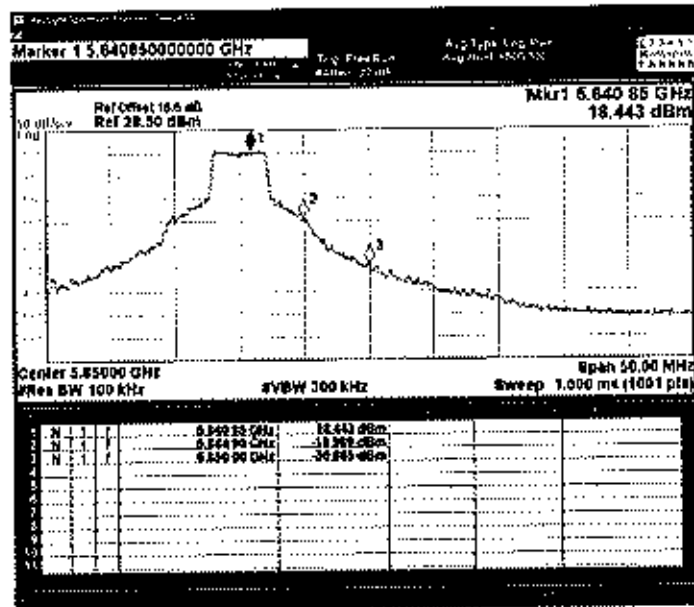


Figure 91: Band edge measured at Ch. 0-Average detector

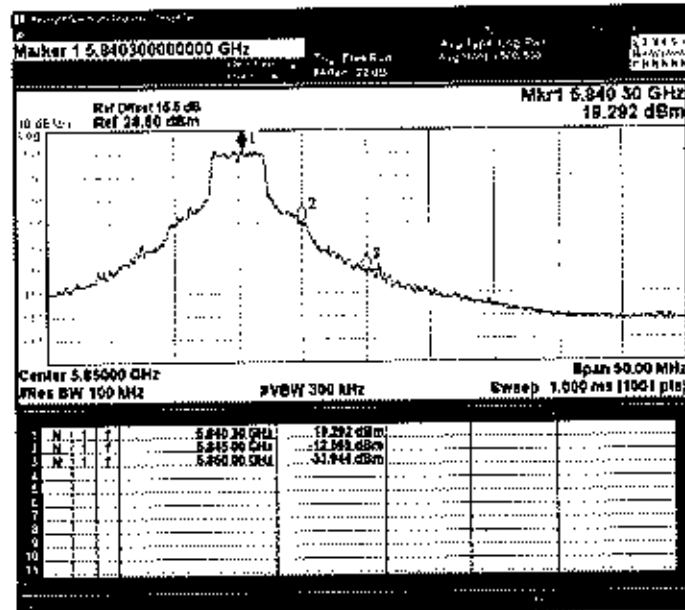


Figure 92: Band edge measured at Ch. 1-Average detector

5.3.5.6 RESULT

Emission is below -30 dBc from the carrier in all channels for both 40 MHz & 5 MHz Modulation Bandwidths.

5.3.6 RADIO FREQUENCY POWER IN ANY 100 KHz BANDWIDTH II OUTSIDE THE INTENTIONAL BAND

5.3.6.1 TEST SPECIFICATION

Test Standard	47 CFR, Part 15, Subpart C Feb 2016
Test Procedure	ANSI C63.4-2014
Frequency Range	150 kHz to 40 GHz
Resolution Bandwidth	100 kHz
Video Bandwidth	300 kHz
Sweep Time	Auto
Attenuation	Auto
Test Mode	Conducted
Detector	Peak
Input Voltage	120 V AC
Input Frequency	60 Hz
Temperature	21.0 °C
Humidity	54.0 %
Tested By	Nishanth
Test Date	25 th Jan 2016

5.3.6.2 LIMITS

Standard	Reference section	Frequency range	Limit
47 CFR, Part 15, Subpart C Feb 2016	§15.247 (d)	5725 MHz to 5825 MHz	-30 dBc in any 100 kHz band outside the Intentional band

5.3.6.3 TEST SETUP

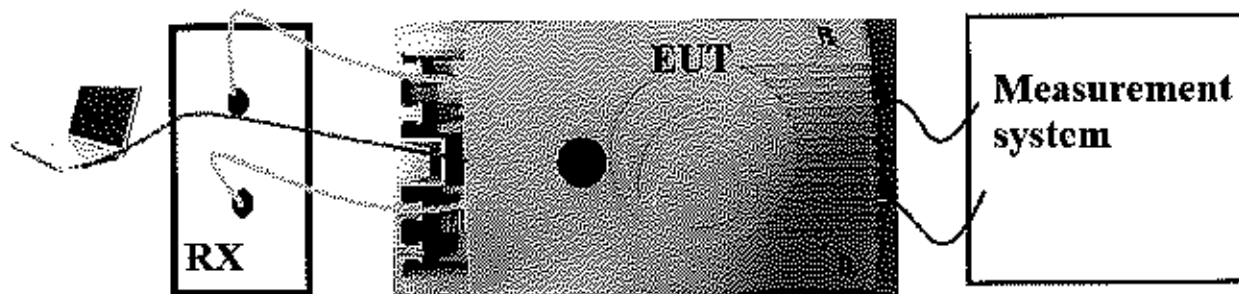


Figure 93: Typical test setup for Conducted Test setup

5.3.6.4 TEST PROCEDURE

The Conducted test was performed using the Spectrum analyzer. Measurements were done as per Section 11.3 of 789033 D02 General UNII Test Procedures New Rules v01r01². 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

5.3.6.5 MEASUREMENT GRAPHS / DATA

5.3.6.5.1 40 MHz MODULATION BANDWIDTH FOR 17 dBm POWER SETTINGS

LOW CHANNEL 5750 MHz

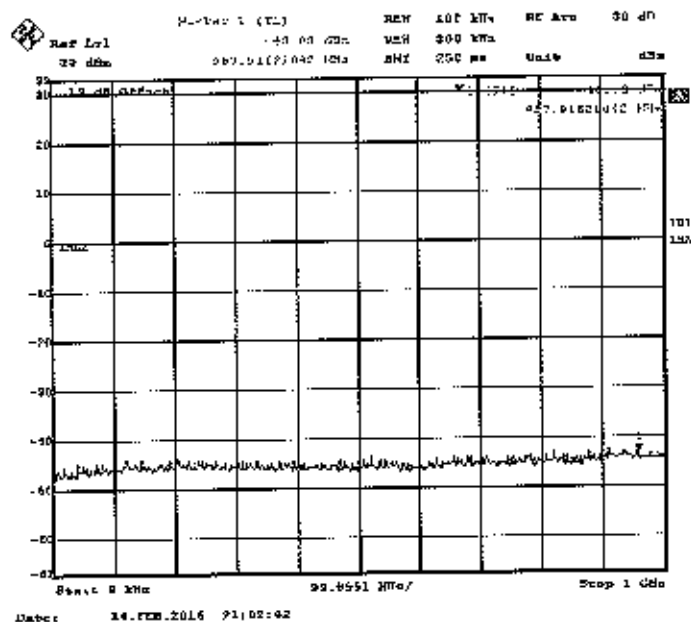


Figure 94: Spurious emission 9 KHz to 1 GHz measured at Ch. 0

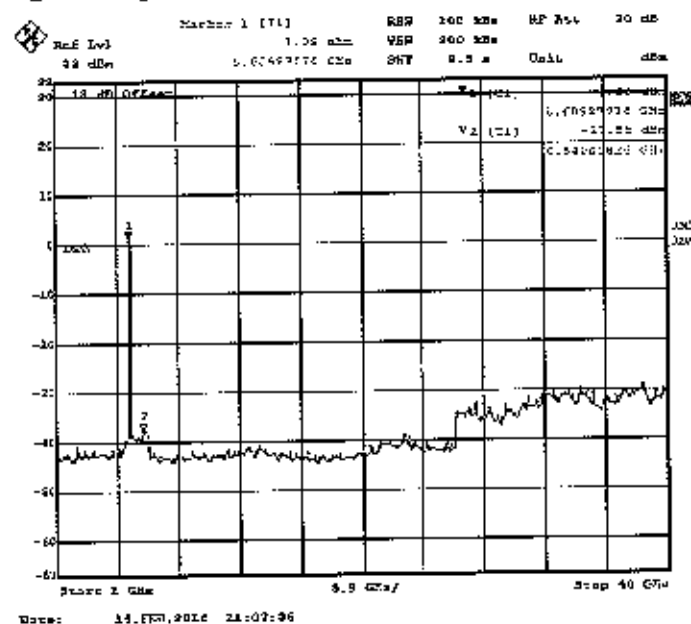


Figure 95: Spurious emission 1 GHz to 40 GHz measured at Ch. 0

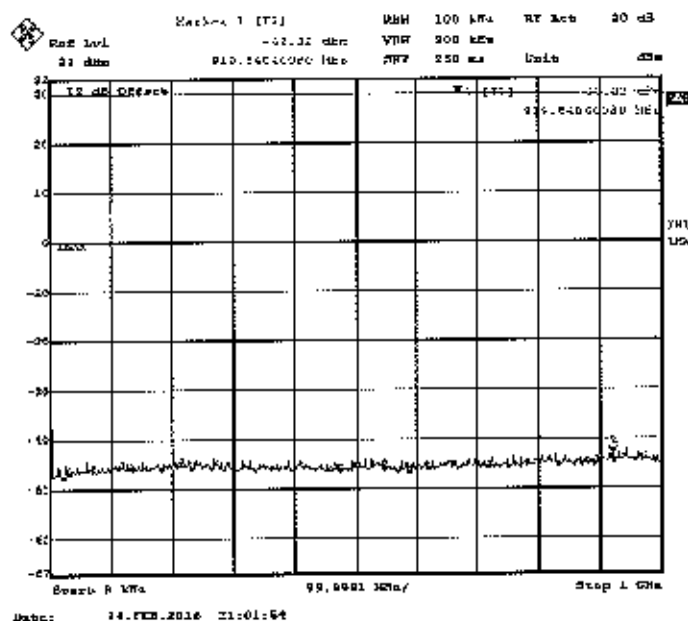


Figure 96: Spurious emission 9 KHz to 1 GHz measured at Ch. 1

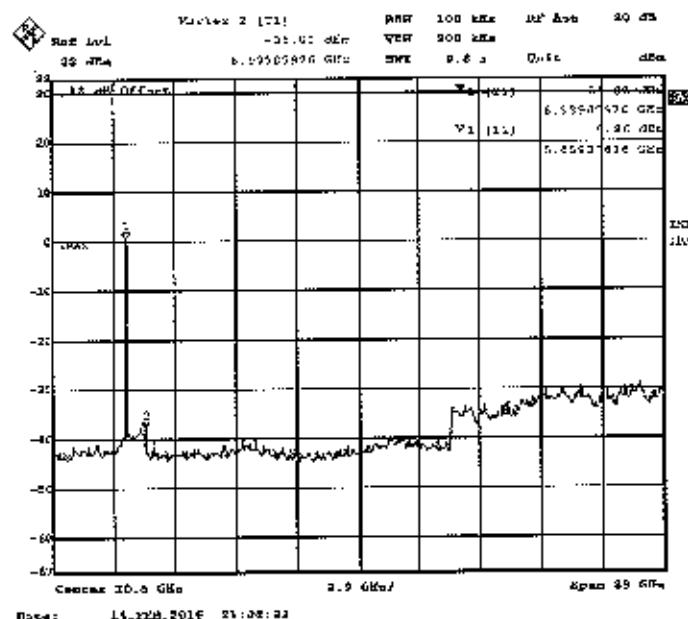


Figure 97 Spurious emission 1 GHz to 40 GHz measured at Ch. 1

MID CHANNEL_5775 MHz

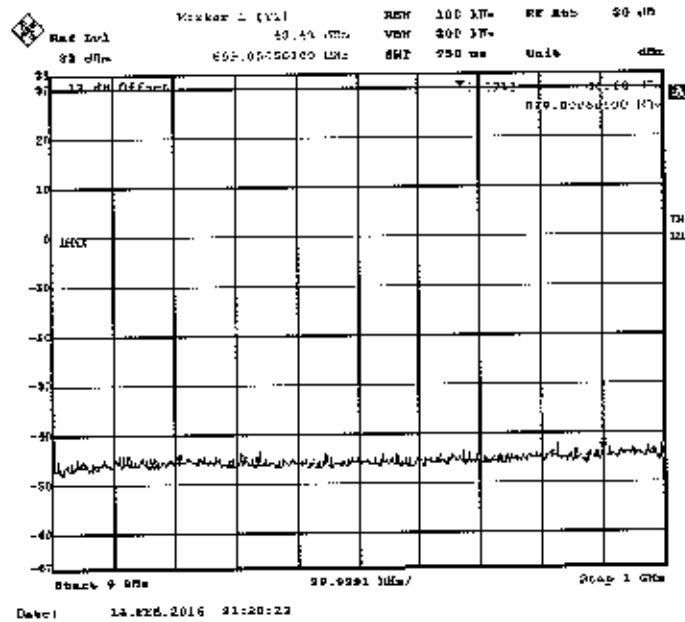


Figure 98: Spurious emission 9 KHz to 1 GHz measured at Ch. 0

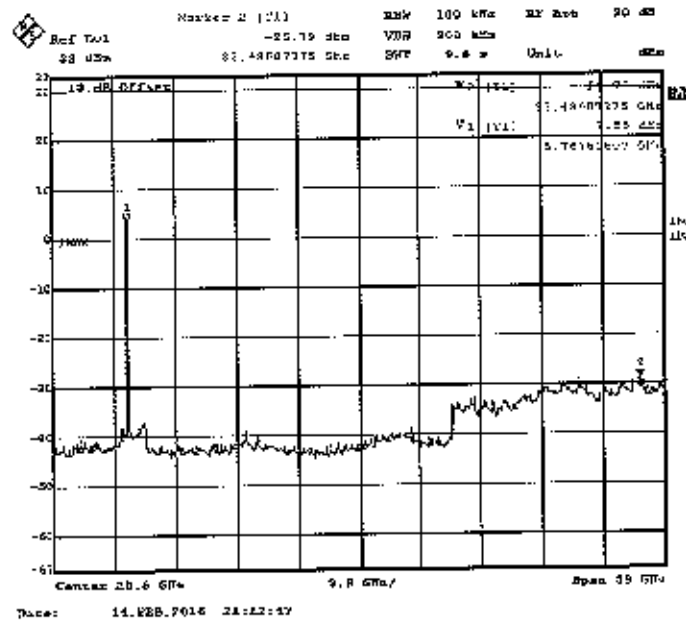


Figure 99: Spurious emission 1 GHz to 40 GHz measured at Ch. 0

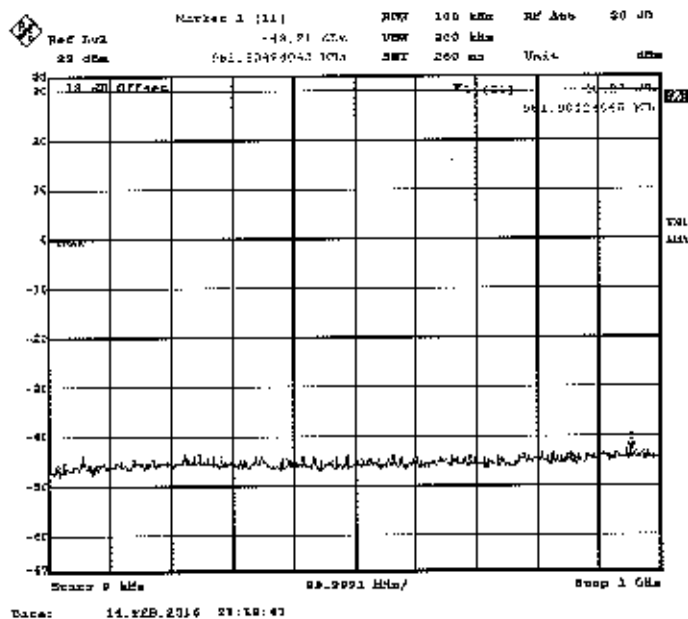


Figure 100: Spurious emission 9 KHz to 1 GHz measured at Ch. 1

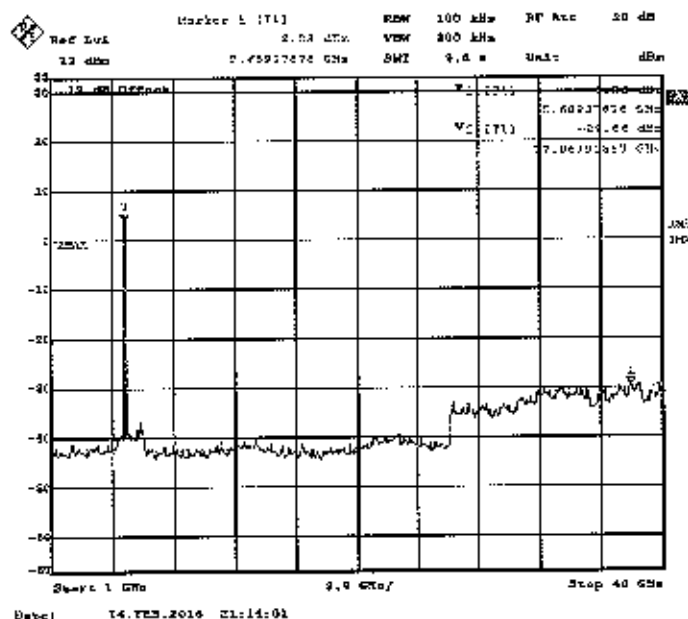


Figure 101: Spurious emission 1 GHz to 40 GHz measured at Ch. 1

III GH CHANNEL_5825 MHz

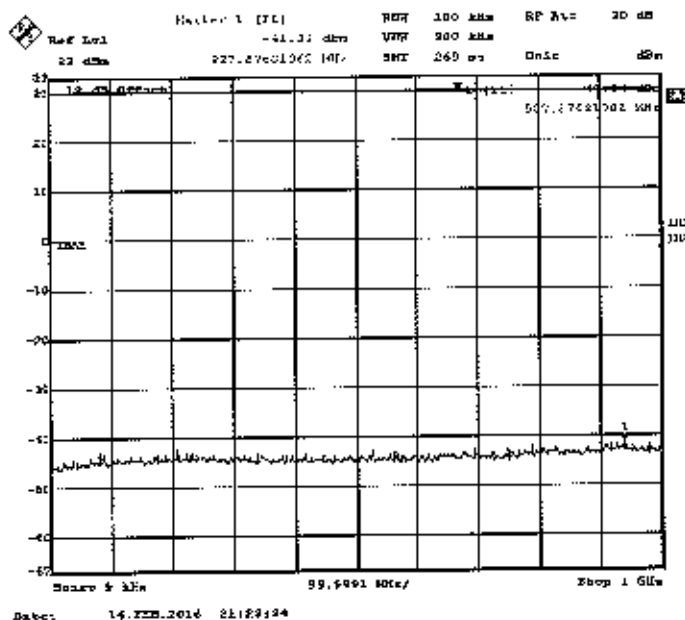


Figure 102: Spurious emission 9 KHz to 1 GHz measured at Ch. 0

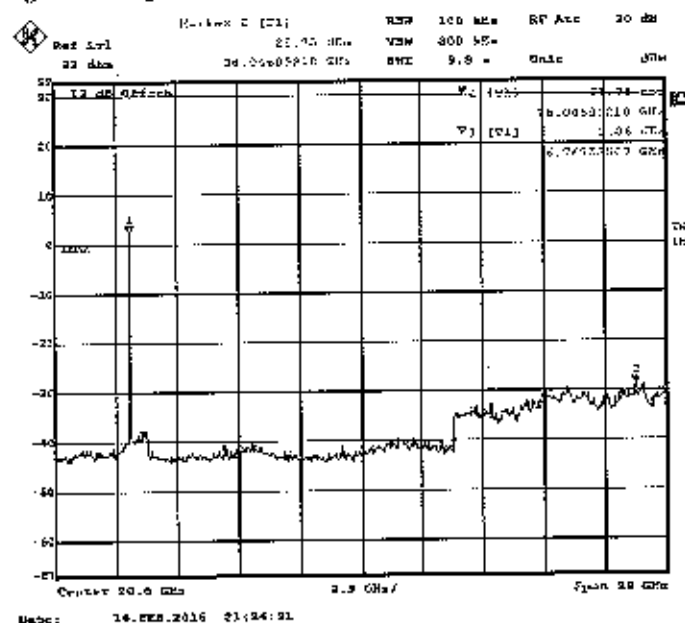


Figure 103: Spurious emission 1 GHz to 40 GHz measured at Ch. 0

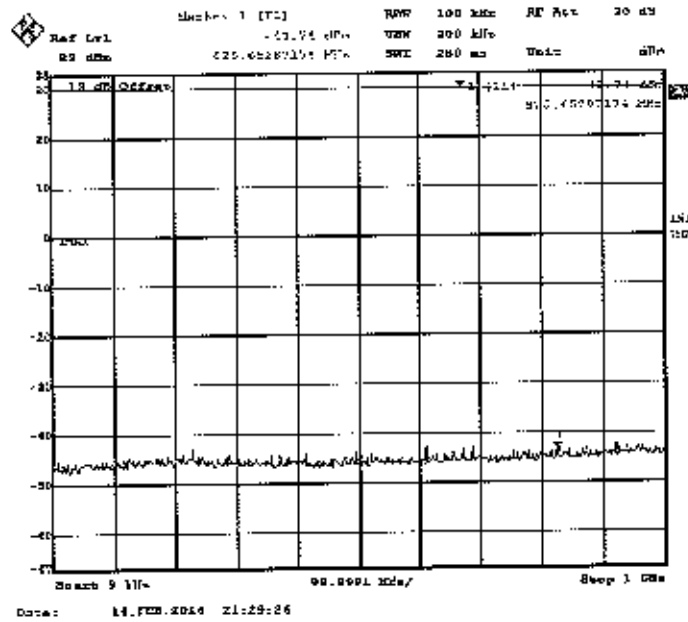


Figure 104: Spurious emission 9 KHz to 1 GHz measured at Ch. 1

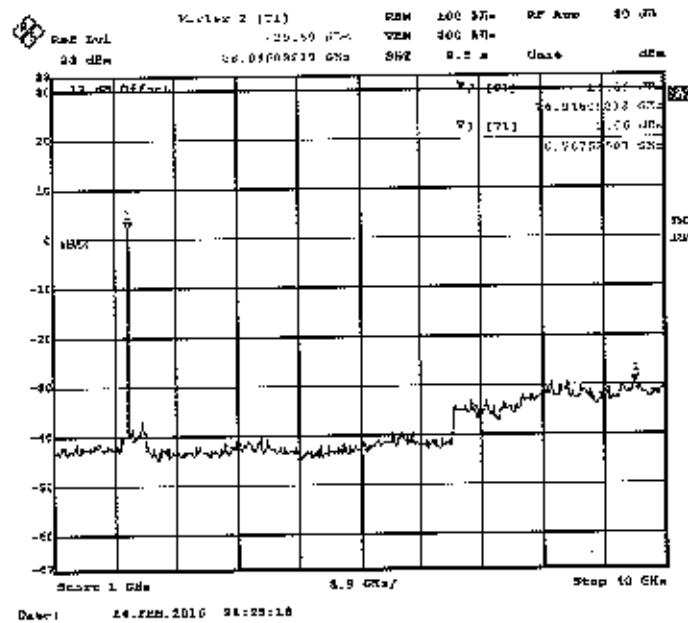


Figure 105: Spurious emission 1 GHz to 40 GHz measured at Ch. 1

5.3.6.5.2 40 MHz MODULATION BANDWIDTH FOR 6 dB_i POWER SETTINGS

LOW CHANNEL_5750 MHz

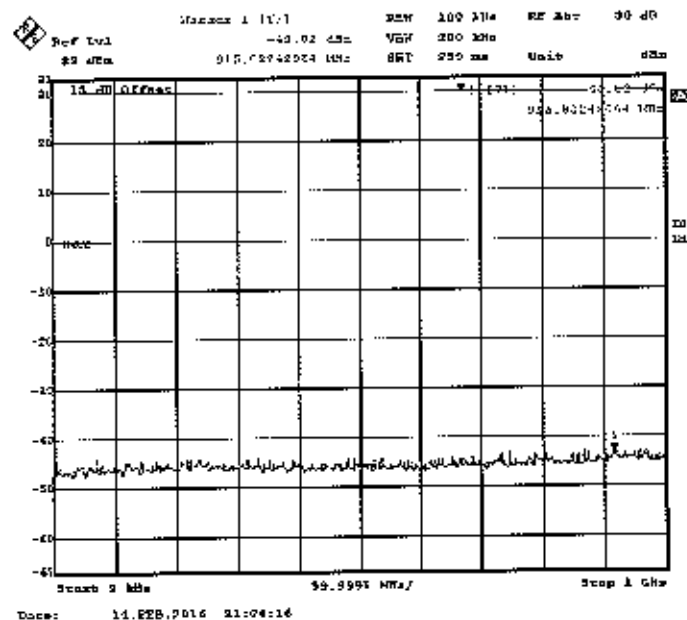


Figure 106: Spurious emission 9 KHz to 1 GHz measured at Ch. 0

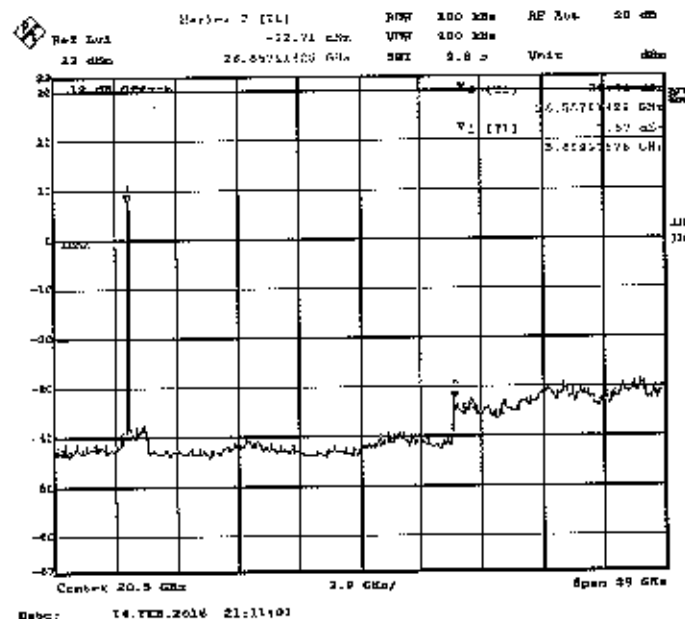


Figure 107: Spurious emission 1 GHz to 40 GHz measured at Ch. 0

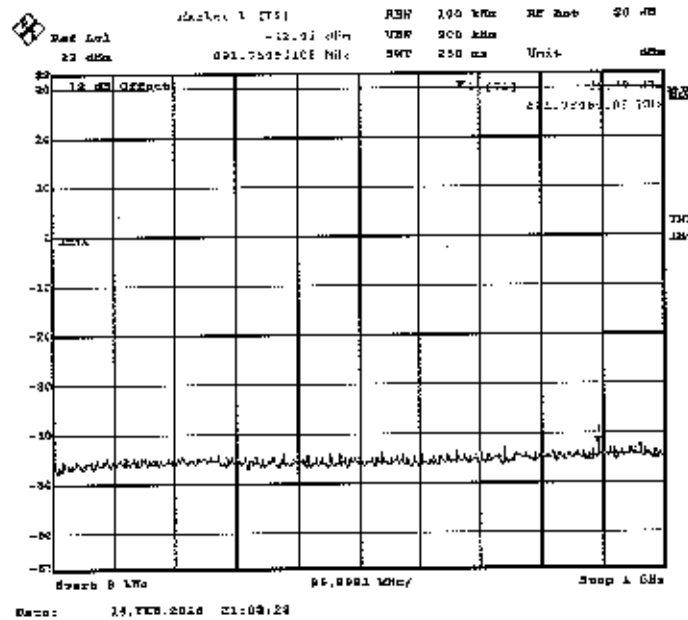


Figure 108 Spurious emission 9 KHz to 1 GHz measured at Ch. 1

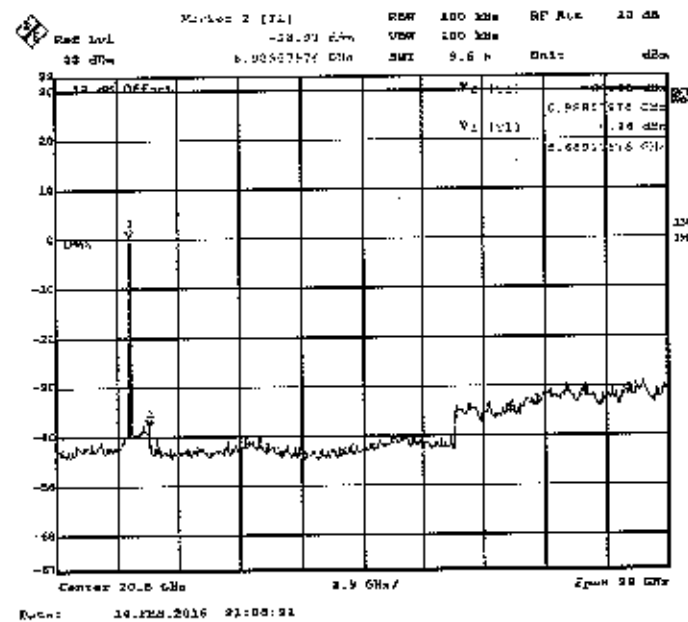


Figure 109 Spurious emission 1 GHz to 40 GHz measured at Ch. 1

MID CHANNEL_5775 MHz

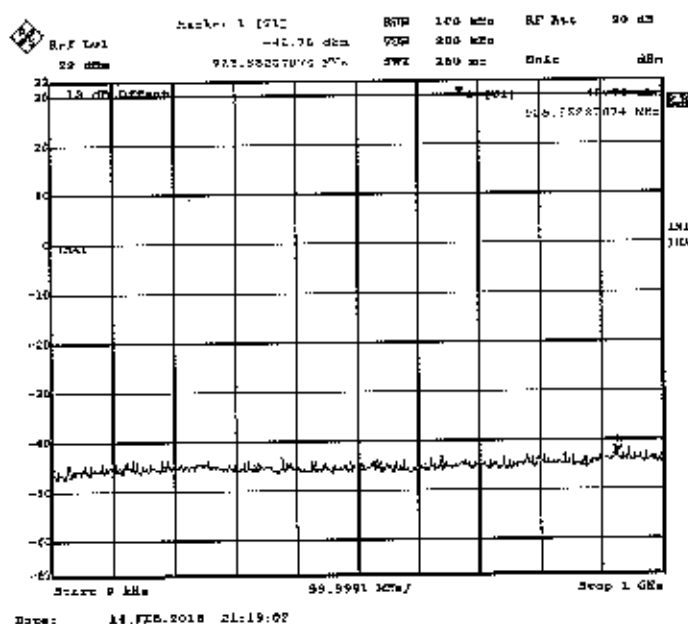


Figure 110: Spurious emission 9 kHz to 1 GHz measured at Ch. 0

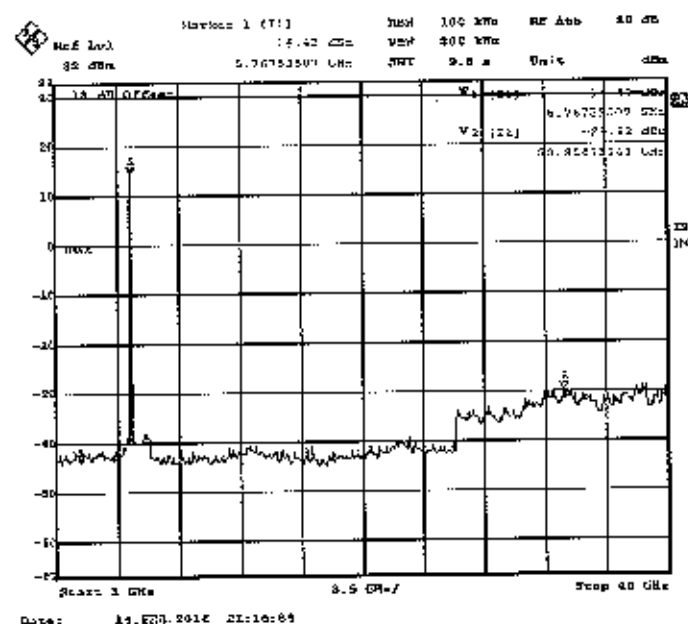
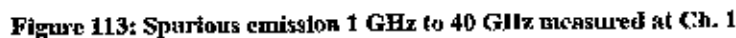
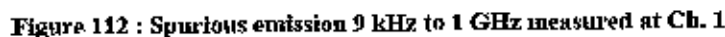


Figure 111: Spurious emission 1 GHz to 40 GHz measured at Ch. 0



HIGH CHANNEL_5825 MHz

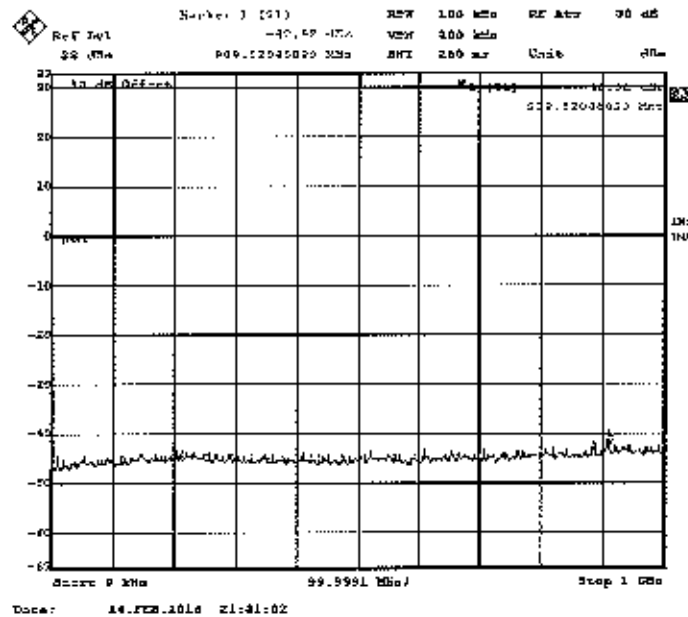


Figure 114 Spurious emission 9 kHz to 1 GHz measured at Ch. 0

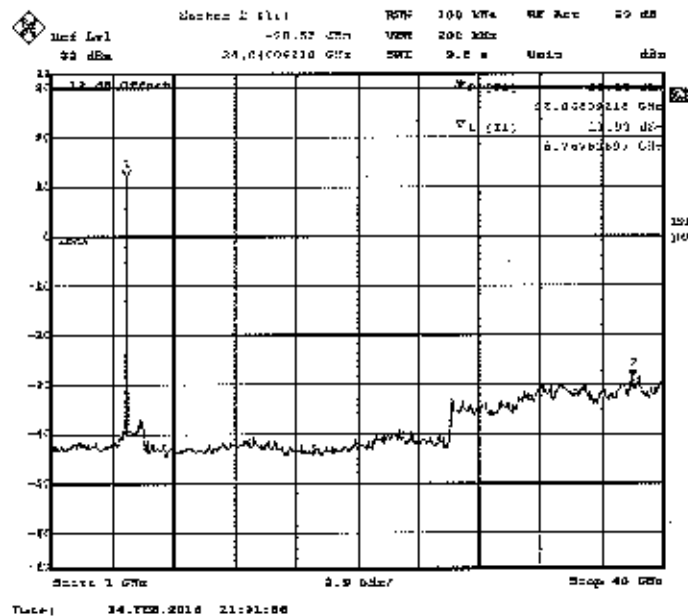


Figure 115: Spurious emission 1 GHz to 40 GHz measured at Ch. 0

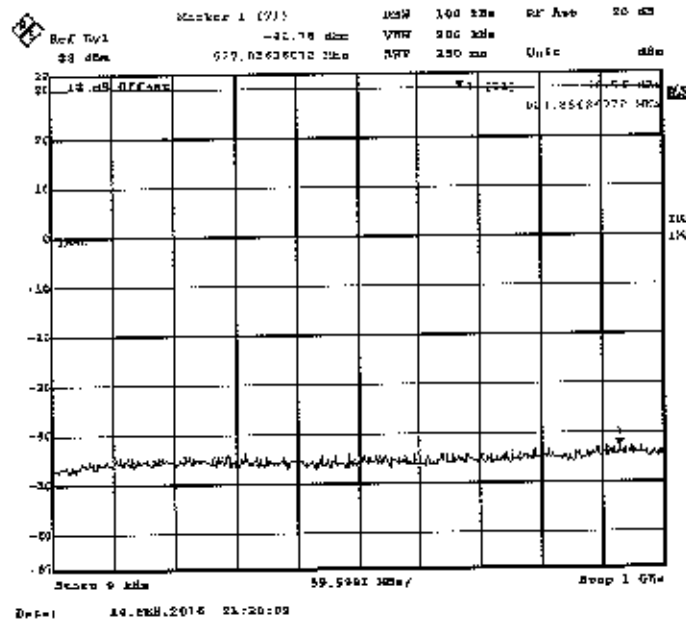


Figure 116 Spurious emission 9 kHz to 1 GHz measured at Ch. 1

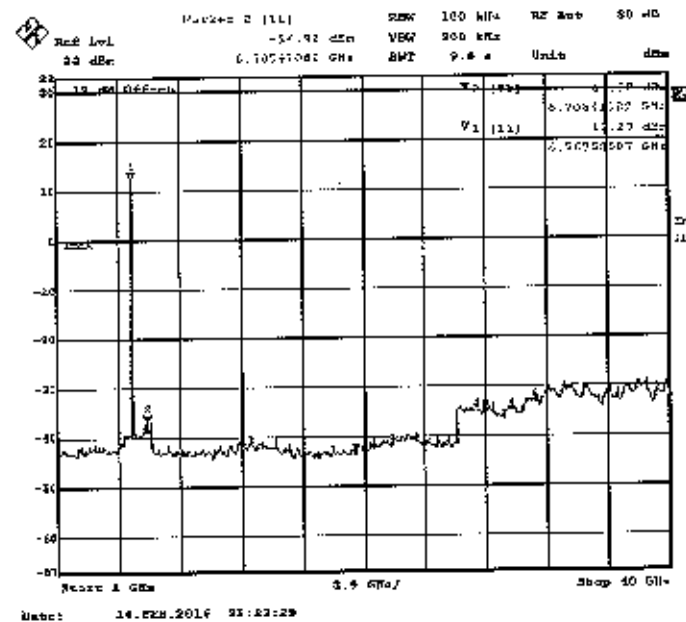


Figure 117: Spurious emission 1 GHz to 40 GHz measured at Ch. 1

5.3.6.5.3 5 MHz MODULATION BANDWIDTH FOR 17 DBI POWER SETTINGS

LOW CHANNEL_5735 MHz

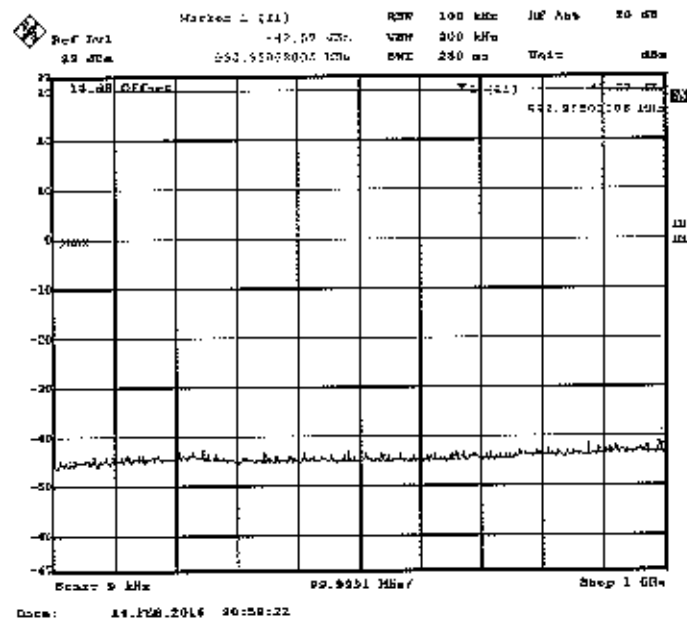


Figure 118 Spurious emission 9 kHz to 1 GHz measured at Ch. 0

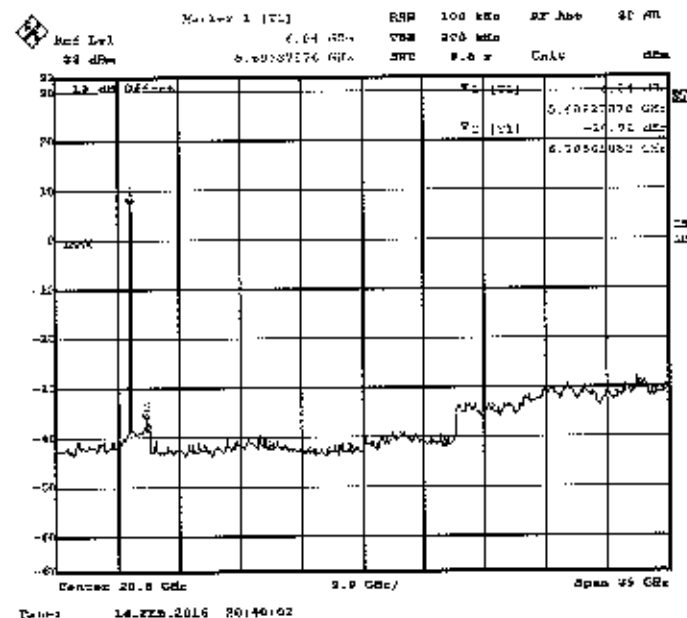


Figure 119: Spurious emission 1 GHz to 40 GHz measured at Ch. 0

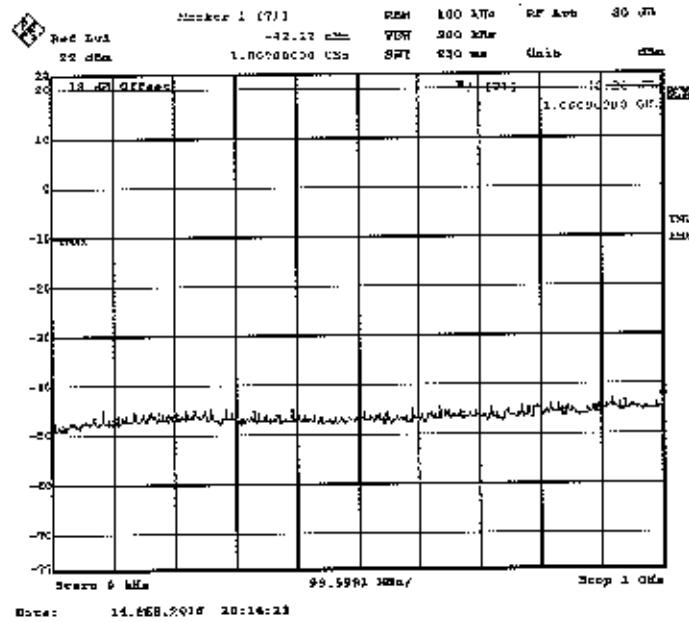


Figure 120: Spurious emission 9 kHz to 1 GHz measured at Ch. 1

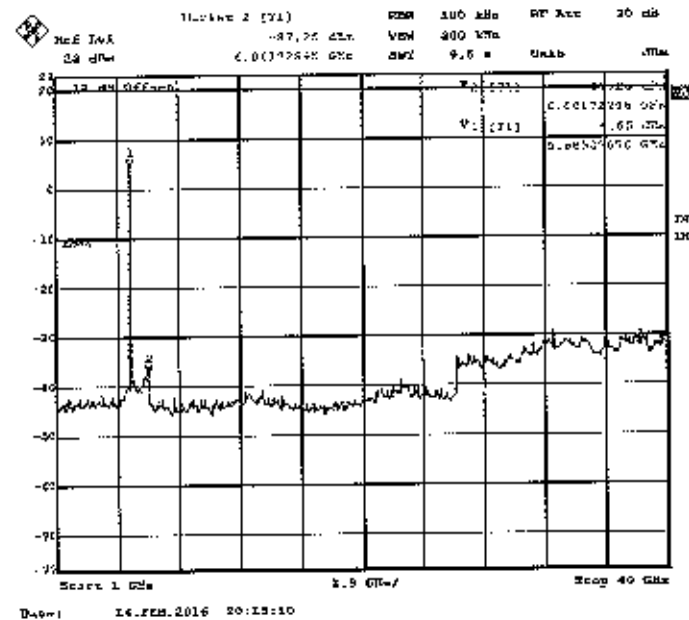


Figure 121: Spurious emission 1 GHz to 40 GHz measured at Ch. 1

MID CHANNEL_5775 MHZ

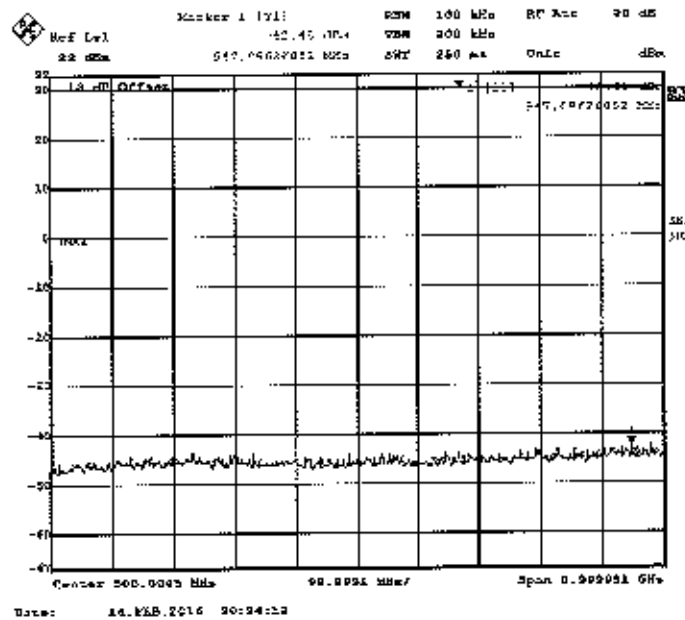


Figure 122 Spurious emission 9 kHz to 1 GHz measured at Ch. 0

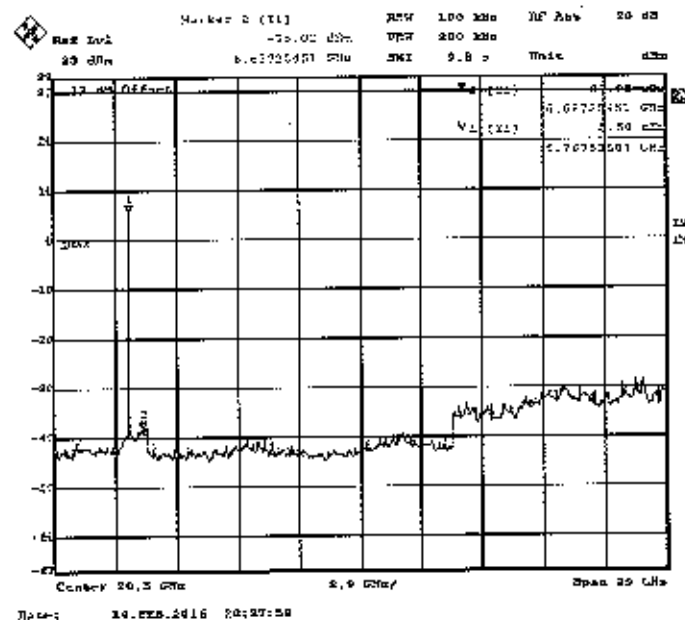


Figure 123: Spurious emission 1 GHz to 40 GHz measured at Ch. 0

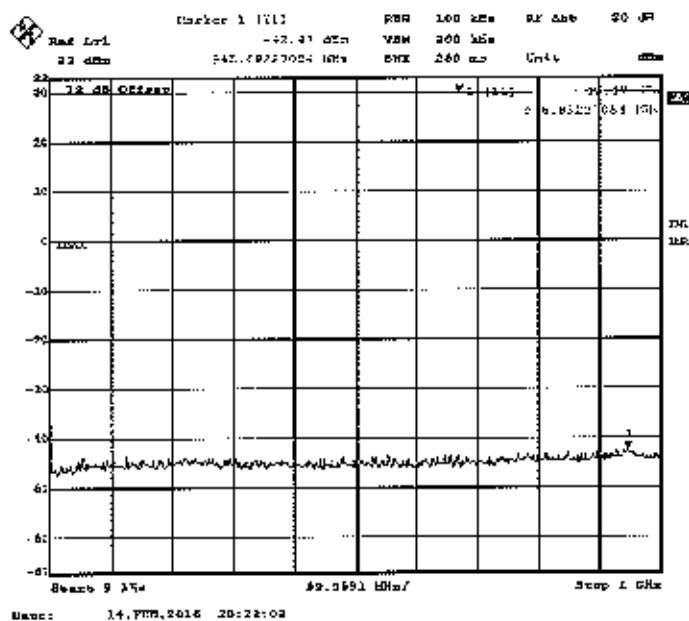


Figure 124 Spurious emission 9 kHz to 1 GHz measured at Ch. 1

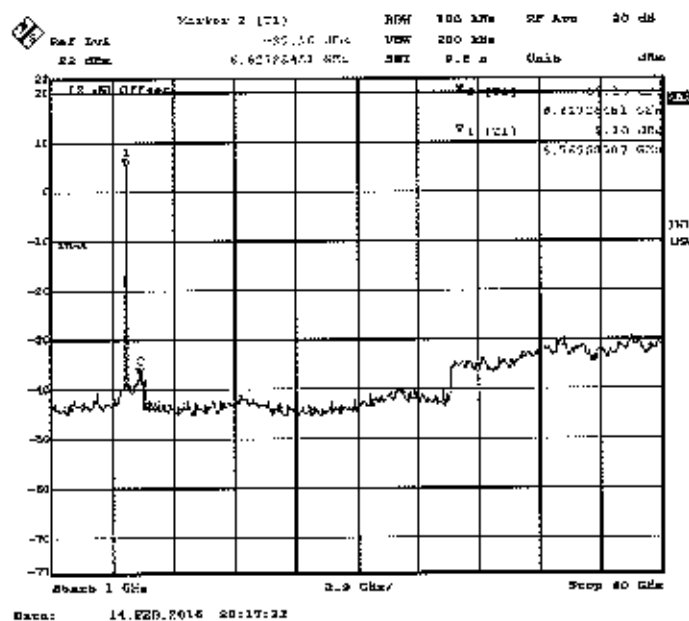


Figure 125: Spurious emission 1 GHz to 40 GHz measured at Ch. 1

HIGH CHANNEL_5840 MHz

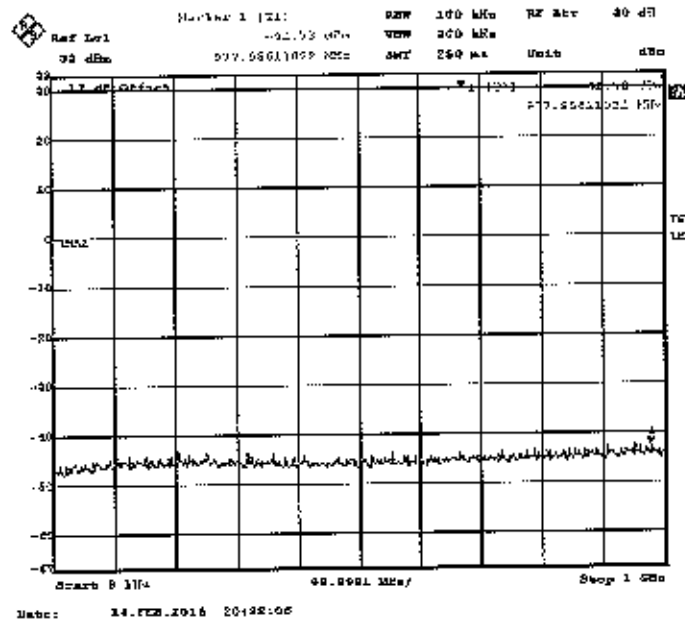


Figure 126: Spurious emission 9 kHz to 1 GHz measured at Ch. 0

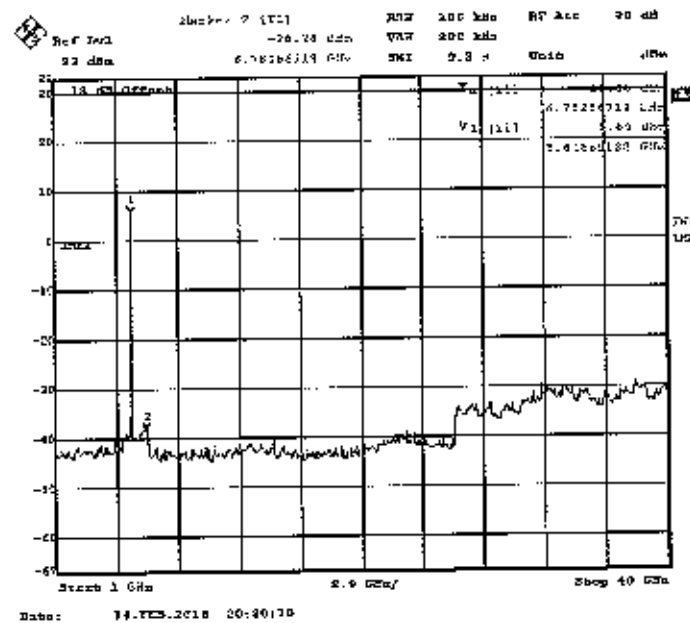


Figure 127: Spurious emission 1 GHz to 40 GHz measured at Ch. 0

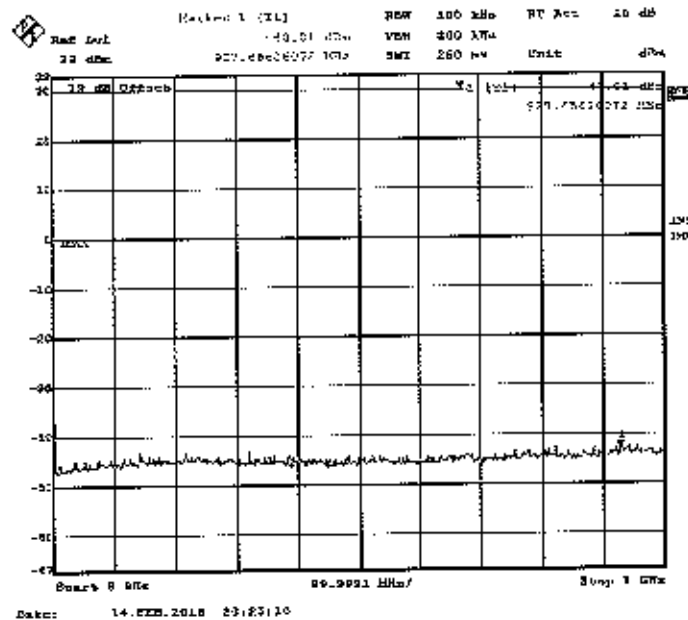


Figure 128 Spurious emission 9 kHz to 1 GHz measured at Ch. 1

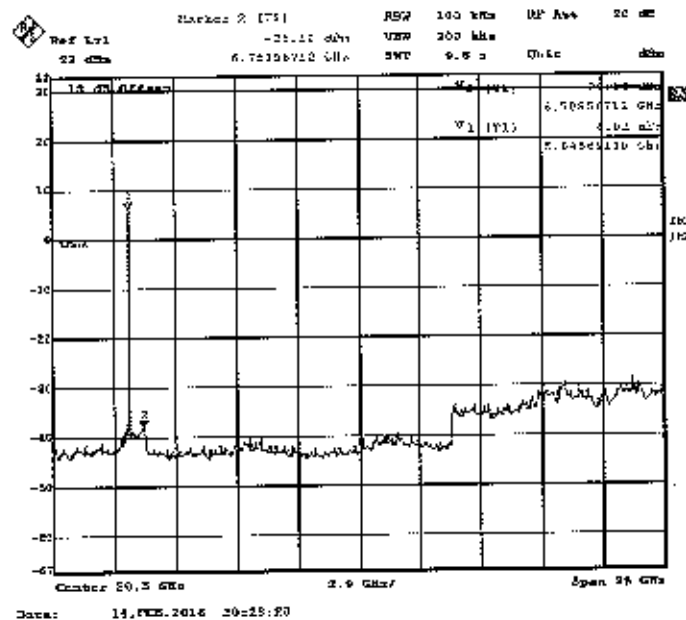


Figure 129: Spurious emission 1 GHz to 40 GHz measured at Ch. 1

5.3.6.5.4 5 MHz MODULATION BANDWIDTH FOR 6 dBm POWER SETTINGS

LOW CHANNEL_5735 MHz

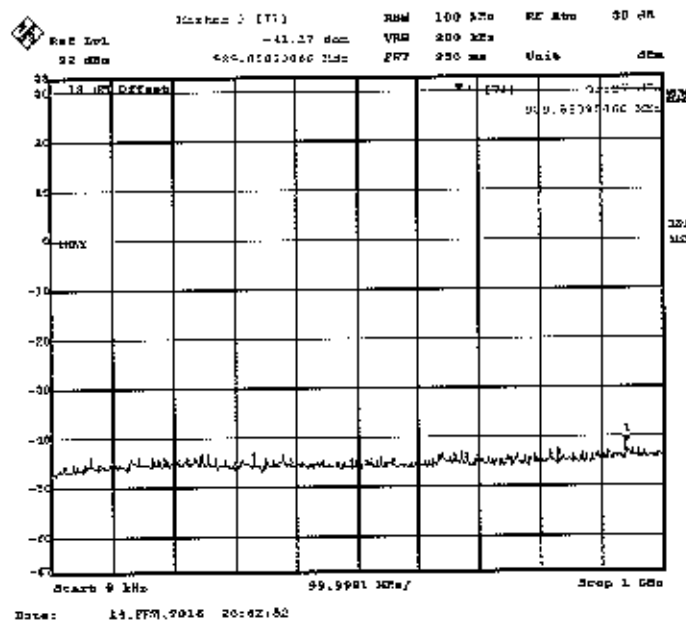


Figure 130 Spurious emission 9 kHz to 1 GHz measured at Ch. 0

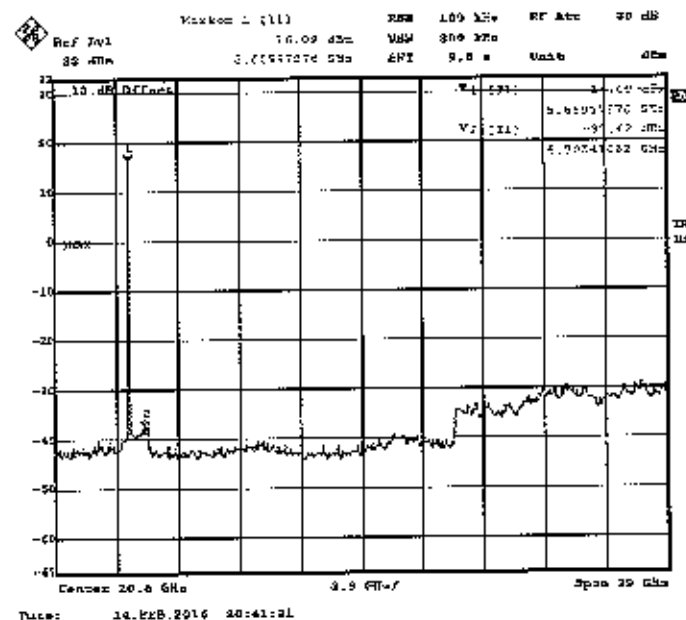


Figure 131: Spurious emission 1 GHz to 40 GHz measured at Ch. 0

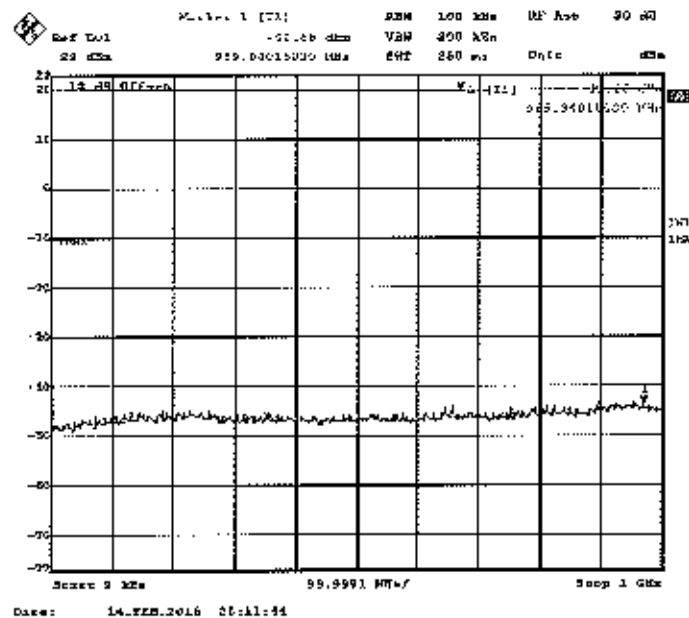


Figure 132: Spurious emission 9 kHz to 1 GHz measured at Ch. 1

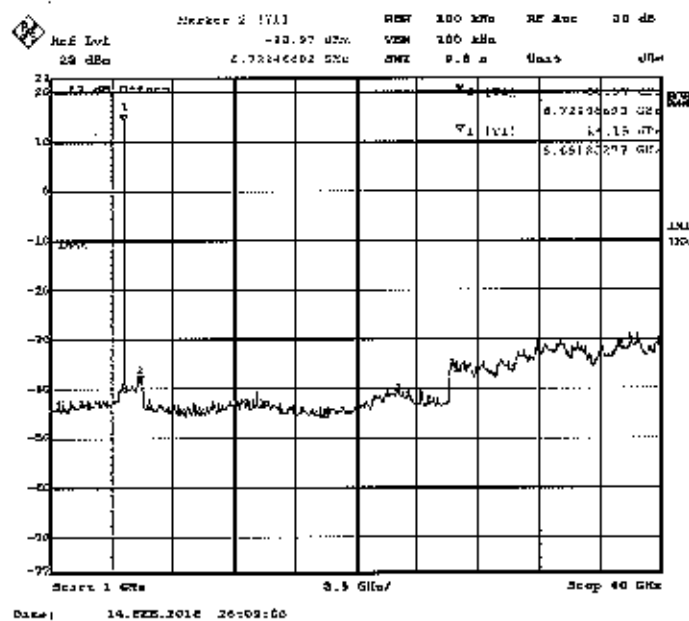


Figure 133: Spurious emission 1 GHz to 40 GHz measured at Ch. 1

MID CHANNEL_5775 MHz

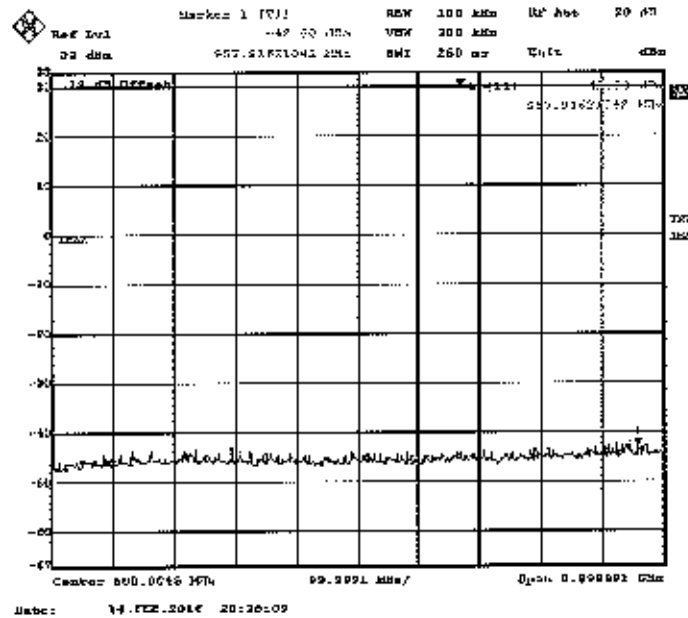


Figure 134 Spurious emission 9 kHz to 1 GHz measured at Ch. 0

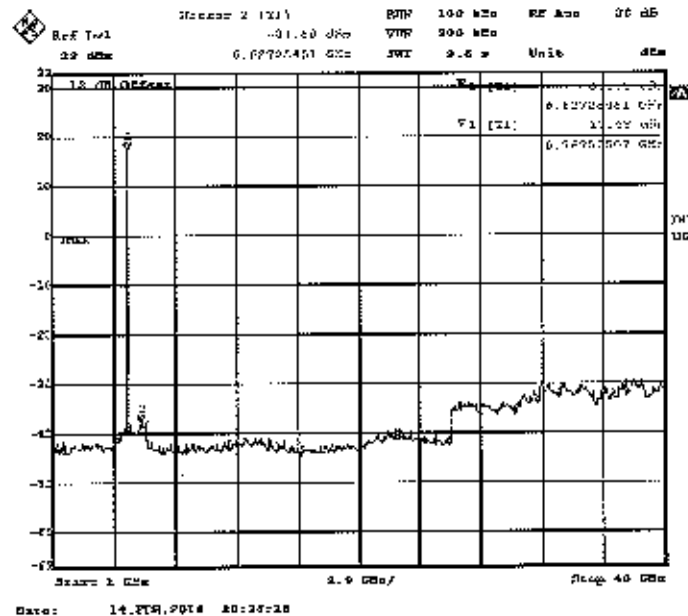


Figure 135: Spurious emission 1 GHz to 40 GHz measured at Ch. 0

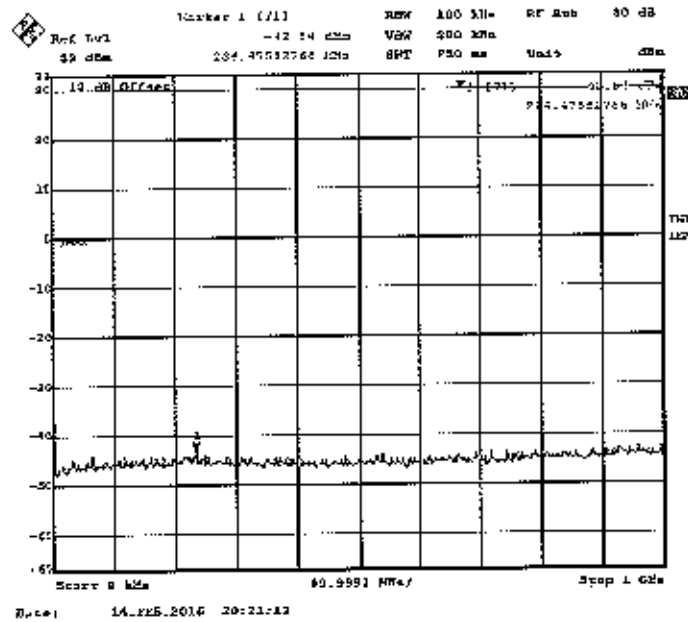


Figure 136 Spurious emission 9 kHz to 1 GHz measured at Ch. 1

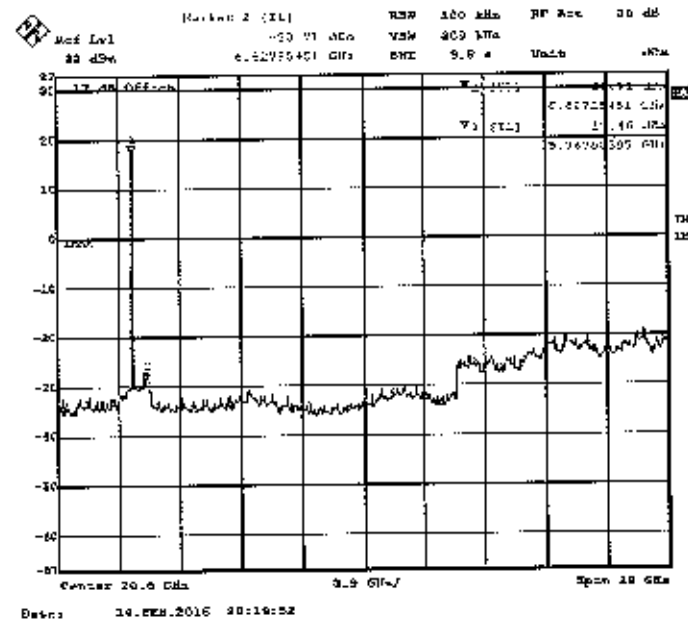


Figure 137: Spurious emission 1 GHz to 40 GHz measured at Ch. 1

HIGH CHANNEL_5840 MHz

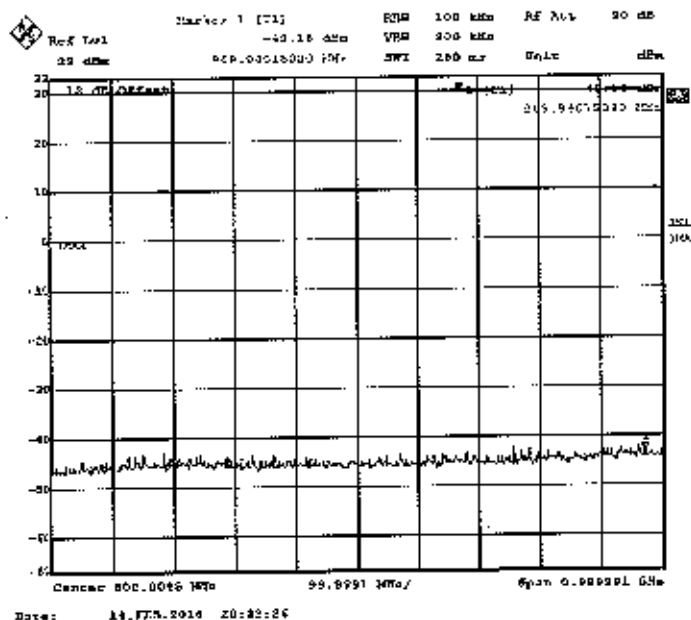


Figure 138 Spurious emission 9 kHz to 1 GHz measured at Ch. 0

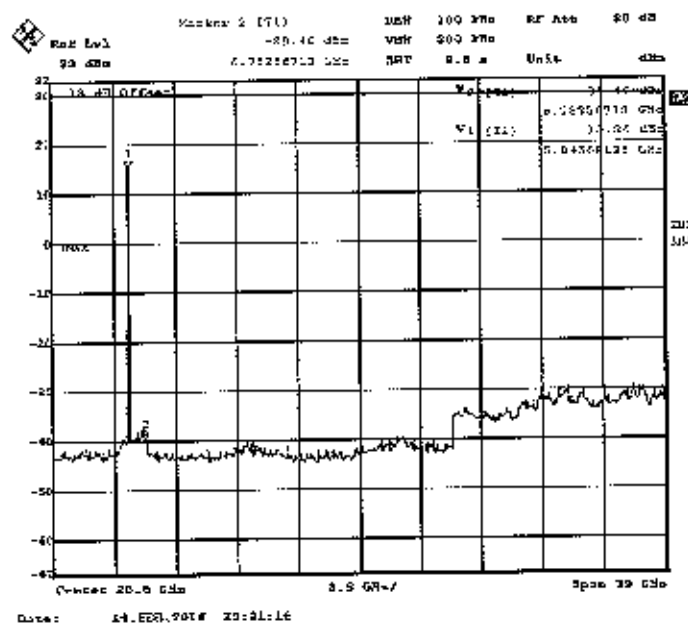


Figure 139: Spurious emission 1 GHz to 40 GHz measured at Ch. 0

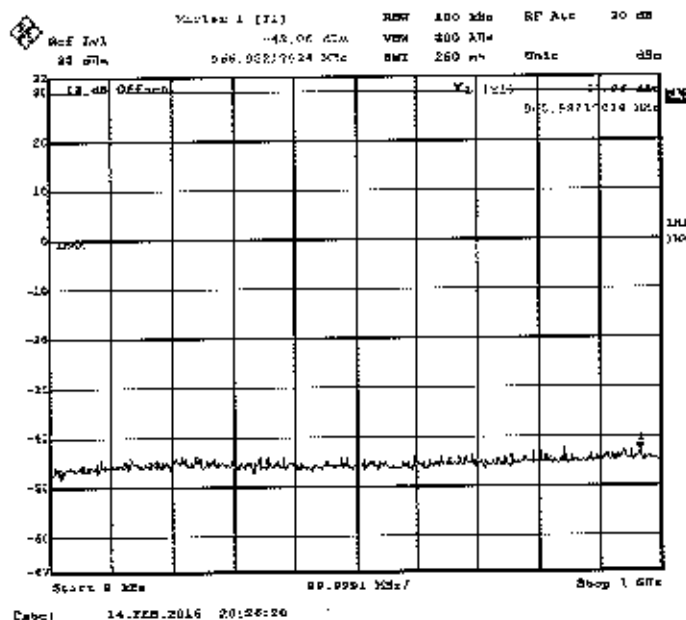


Figure 140 Spurious emission 9 kHz to 1 GHz measured at Ch. 1

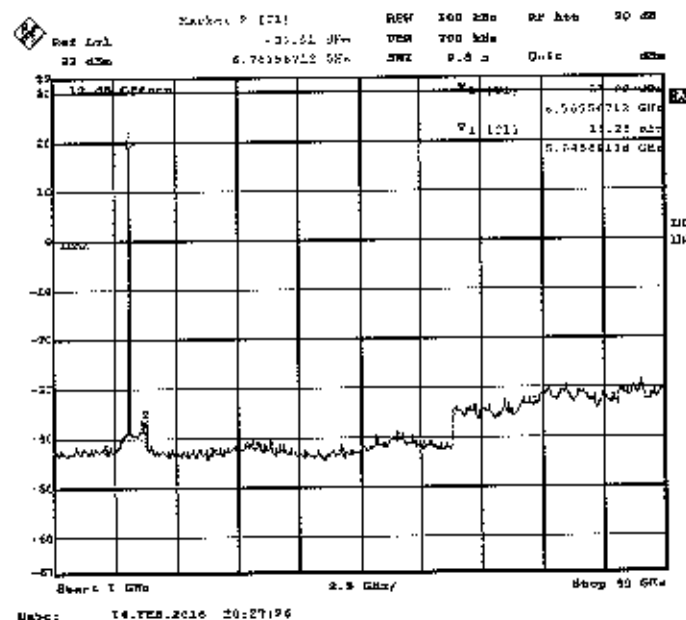


Figure 141: Spurious emission 1 GHz to 40 GHz measured at Ch. 1

5.3.6.6 RESULT

Emission is below -30 dBc from the carrier in all channels for both 40 MHz & 5 MHz Modulation Bandwidths.

5.3.7 TRANSMITTER UNWANTED EMISSIONS (CONDUCTED)

5.3.7.1 TEST SPECIFICATION

Test Standard	47 CFR, Part 15 Feb 2016			
Test Procedure	ANSI C63.10-2013			
Frequency Range	9 kHz - 150 kHz	150 kHz - 30 MHz	30 MHz - 1 GHz	1 GHz - 40 GHz
Resolution Bandwidth	200 Hz	9 kHz	120 kHz	1 MHz
Video Bandwidth	1 kHz	30 kHz	300 kHz	3 MHz
Sweep Time	Auto	Auto	Auto	Auto
Detector	Peak	Peak	Peak	Peak & Average
Attenuation	Auto			
Test Mode	Conducted			
Input Voltage	120 V AC			
Input Frequency	60 Hz			
Temperature	22.0 °C			
Humidity	56.0 %			
Tested By	Nishanth /Suresh GN			
Test Date	14 th Feb 2016			

5.3.7.2 LIMITS

Standard	Reference section	Frequency range	Limit (dBμV/m)
47 CFR, Part 15 Feb 2016	§15.407 b (3)	Within 5715-5725 MHz & 5850-5860 MHz	89.99
	§15.407 b (6)	Outside 5715-5860 MHz	79.99

Table 11: Unwanted emission Limit

Standard	Reference section	Frequency range	Limit (dBμV/m)
47 CFR, Part 15 Feb 2016	§15.209	9 kHz to 490 kHz	128.5194 to 93.8003*
		490 kHz to 1.705 MHz	73.8003 to 62.9697*
		1.705 MHz to 30 MHz	69.5429

Table 12: General Field strength limit below 30MHz

Note: * Decreases with the logarithm of the frequency

Standard	Reference section	Frequency range	Limit (dBμV/m) as per Section 15.209
47 CFR, Part 15 Feb 2016	§15.209	30 MHz to 88 MHz	39.54
		88 MHz to 216 MHz	43.52
		216 MHz to 960 MHz	46.02
		960 MHz to 40 GHz	53.98

Table 13: General Field strength limit above 30MHz

Above table specifies limit with Average detector above 1GHz. 73.98dBμV/m is considered as the limit when Peak detector is employed for the measurements above 1GHz.

5.3.7.3 TEST SETUP

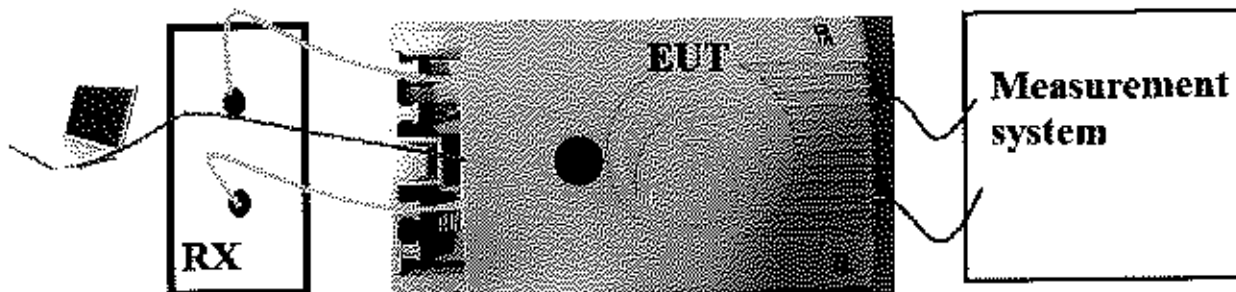


Figure 142 Typical test setup for Conducted Test

5.3.7.4 TEST PROCEDURE

The Conducted test was performed using the Spectrum analyzer/EMI receiver. Measurements were done as per Section II G.6 of KDB "789033 DO2 General UNII Test Procedure New Rules v01r01". The RF output of the EUT was connected to the input port of Spectrum analyzer/EMI receiver using an attenuator. The graph and data captured from spectrum analyzer and performed required calculations to attain the Electric Field value and compared with the limits specified in the standard.

In the frequency range 9 kHz to 1 GHz, the measurement was performed with peak detector. In the frequency range 1 GHz to 40 GHz, measurement was performed employing both peak & average detector as specified in the standard. Detectors were selected based on FCC KDB document.

Peak search option was used to capture the frequency with maximum amplitude in the respective bands and final calculations have been performed on these frequencies to show compliance with the limits specified.

5.3.7.5 MEASUREMENT GRAPHS / DATA

5.3.7.5.1 40 MHz MODULATION BANDWIDTH FOR 17 dBm POWER SETTINGS

LOW CHANNEL_5750 MHz

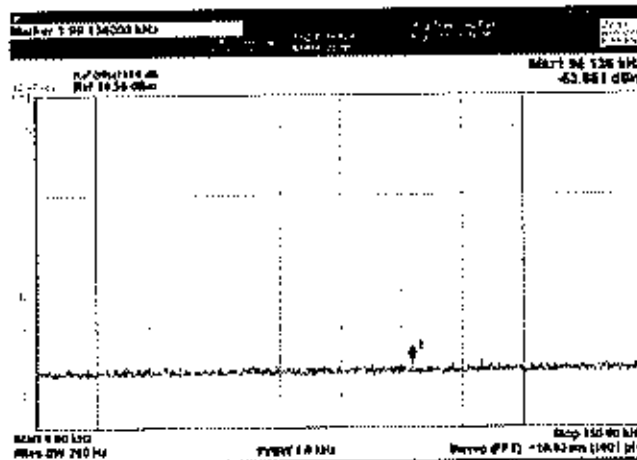


Figure 143 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 0

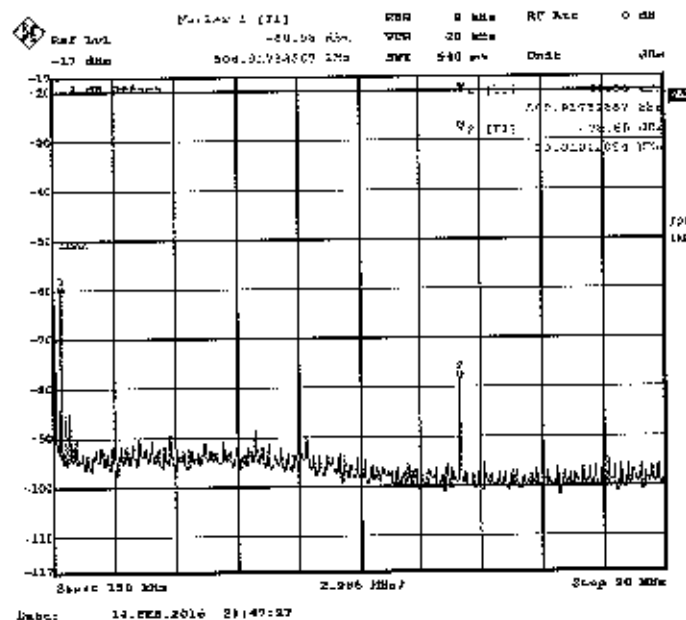


Figure 144 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 0

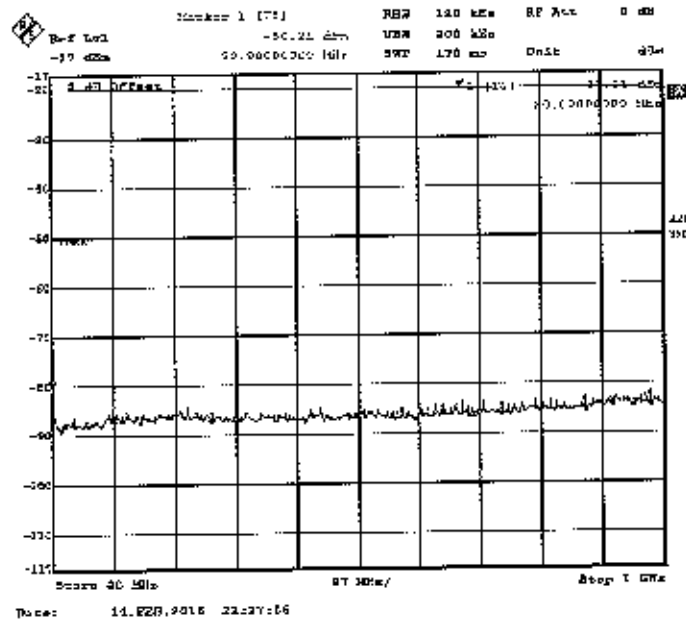


Figure 145 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 0

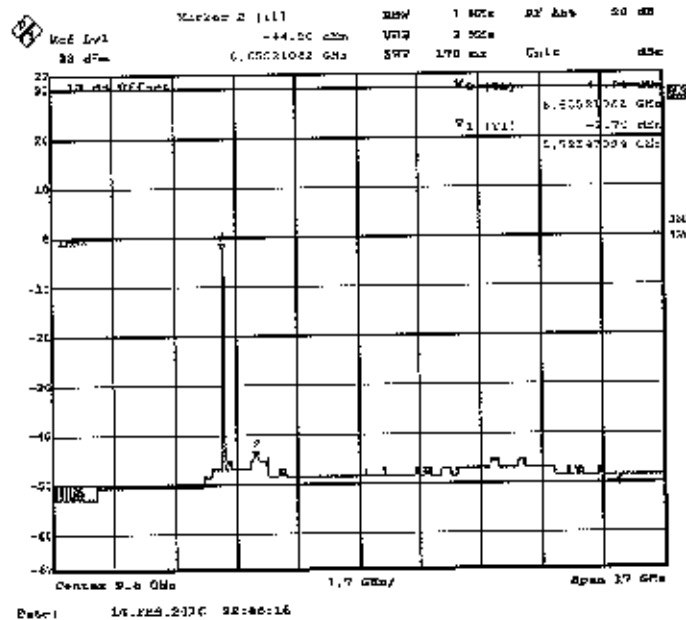


Figure 146 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 0

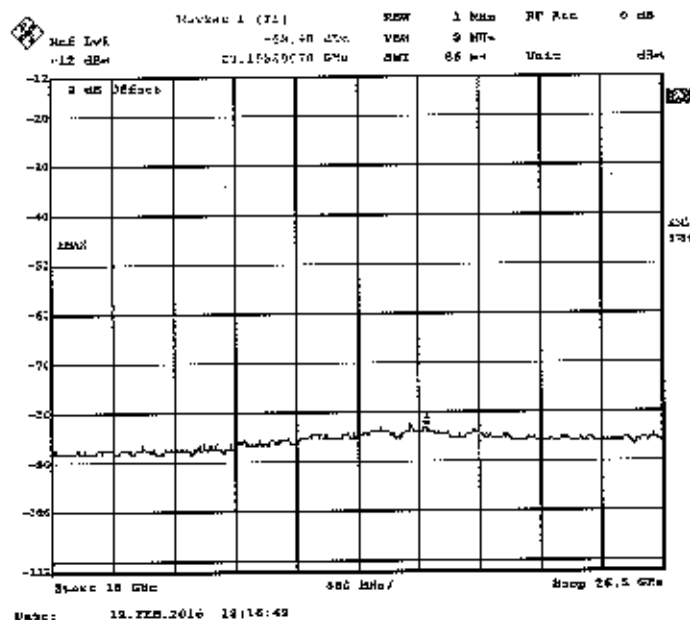


Figure 147 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 0

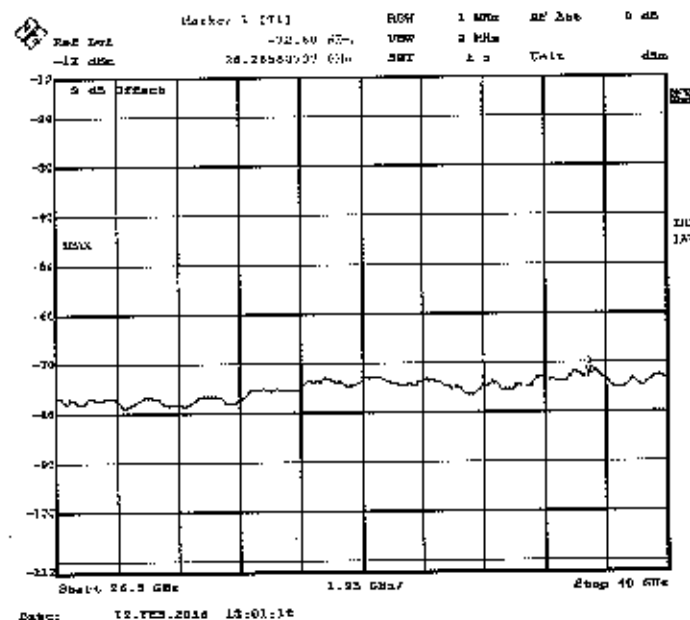


Figure 148 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 0

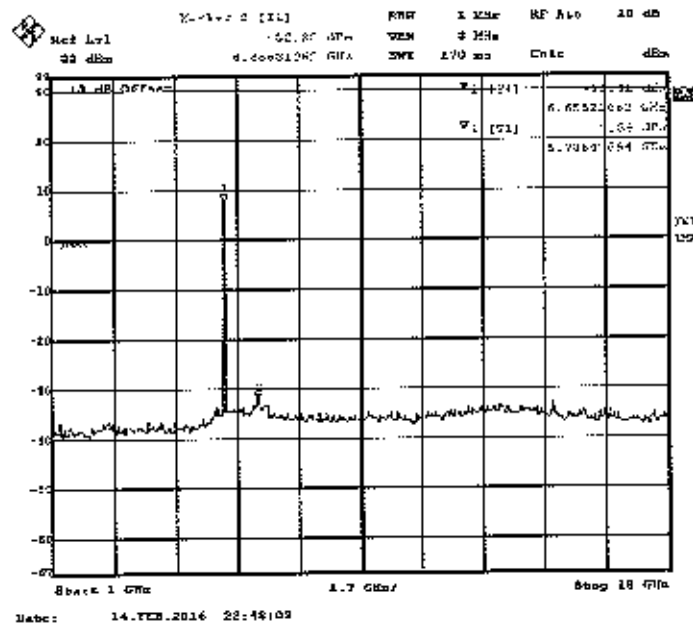


Figure 149 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 0

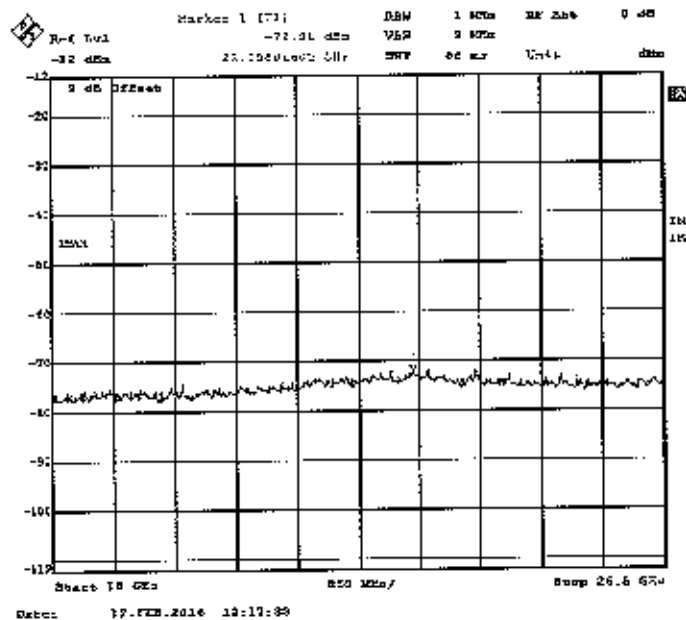


Figure 150 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 0

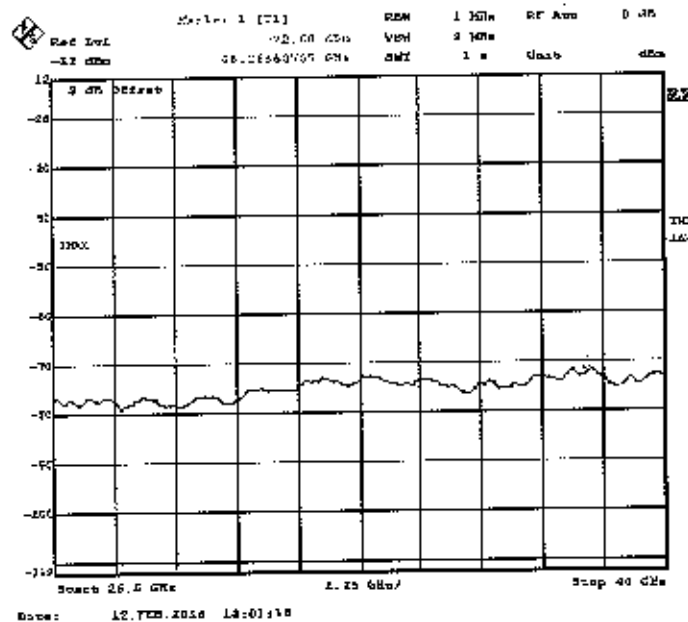


Figure 151 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 0

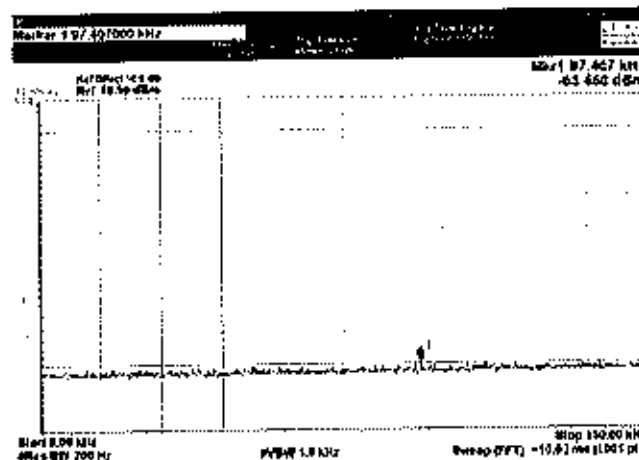


Figure 152 Emission measured with Peak Detector from 9 kHz to 150 kHz at Ch. 1

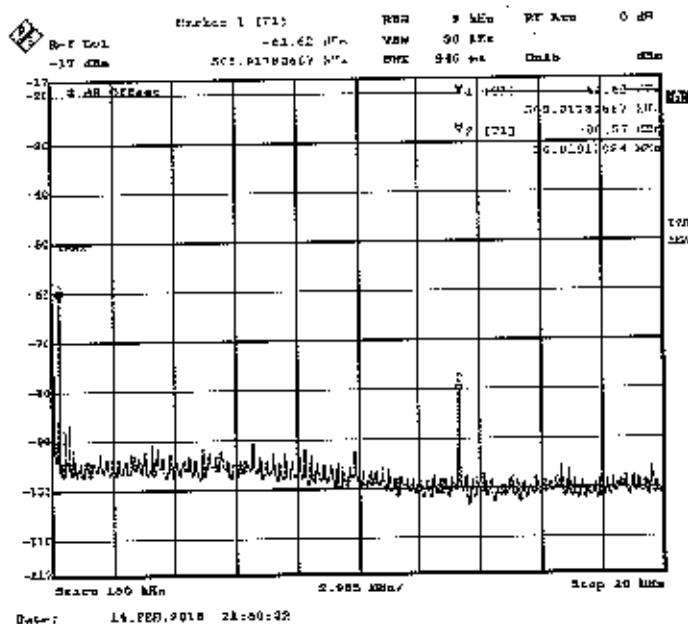


Figure 153 Emission measured with Peak Detector from 150 kHz to 30 MHz at Ch. 1

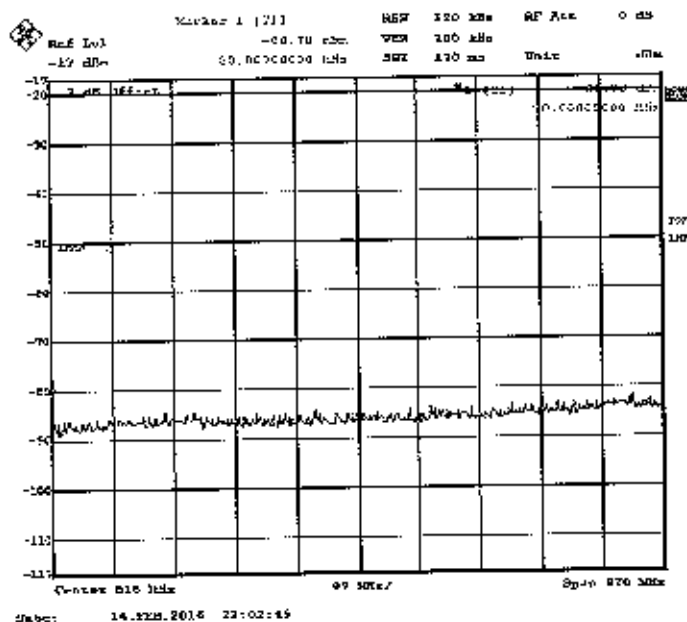


Figure 154 Emission measured with Peak Detector from 30 MHz to 1 GHz at Ch. 1

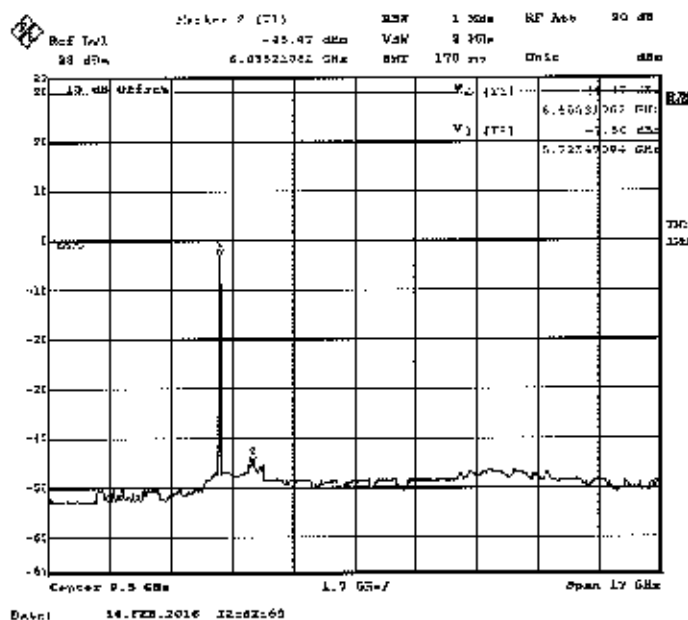


Figure 155 Emission measured with Average Detector from 1 GHz to 18 GHz at Ch. 1

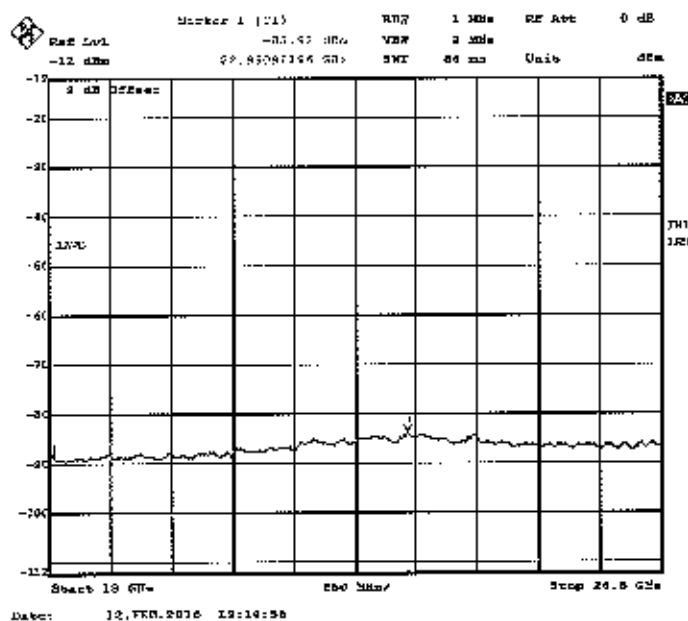


Figure 156 Emission measured with Average Detector from 18 GHz to 26.5 GHz at Ch. 1

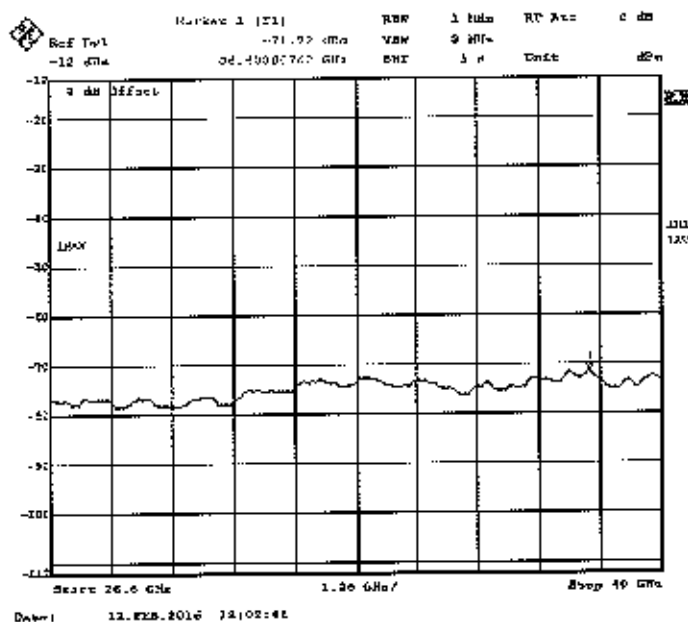


Figure 157 Emission measured with Average Detector from 26.5 GHz to 40 GHz at Ch. 1

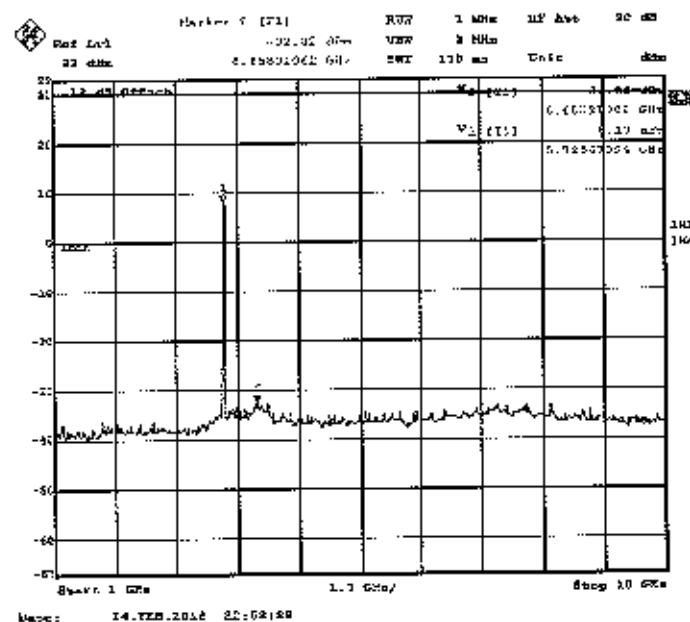


Figure 158 Emission measured with Peak Detector from 1 GHz to 18 GHz at Ch. 1

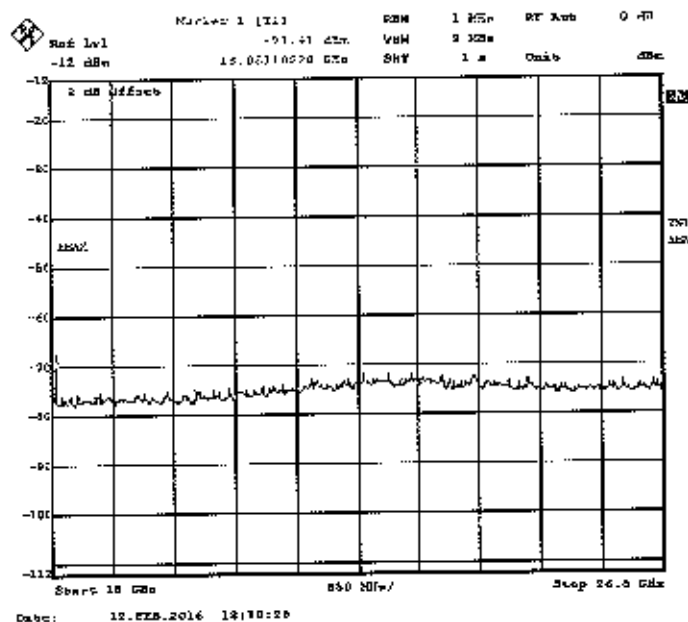


Figure 159 Emission measured with Peak Detector from 18 GHz to 26.5 GHz at Ch. 1

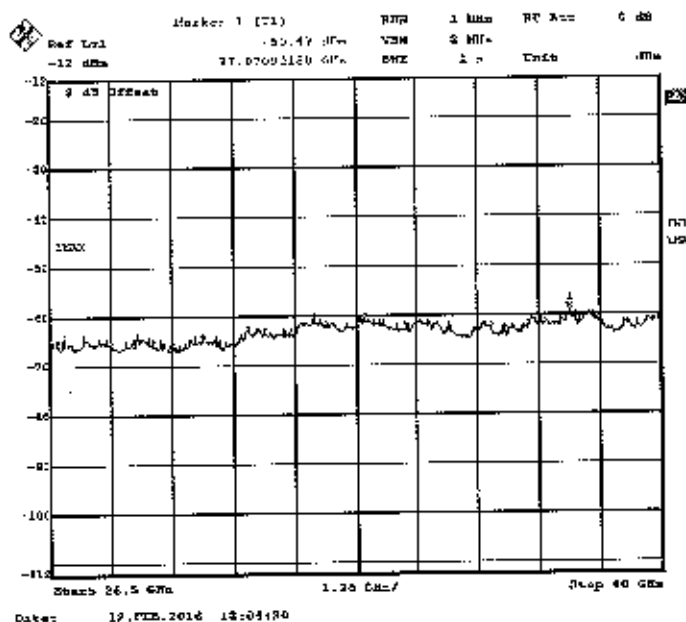


Figure 160 Emission measured with Peak Detector from 26.5 GHz to 40 GHz at Ch. 1