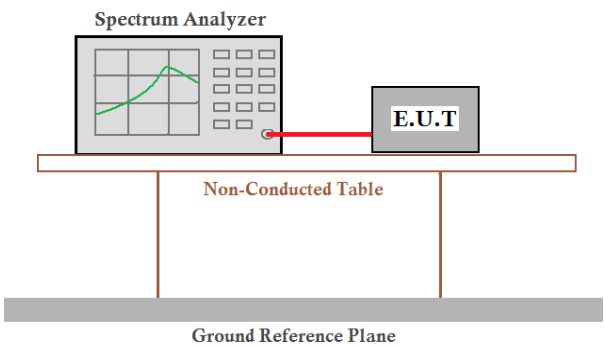


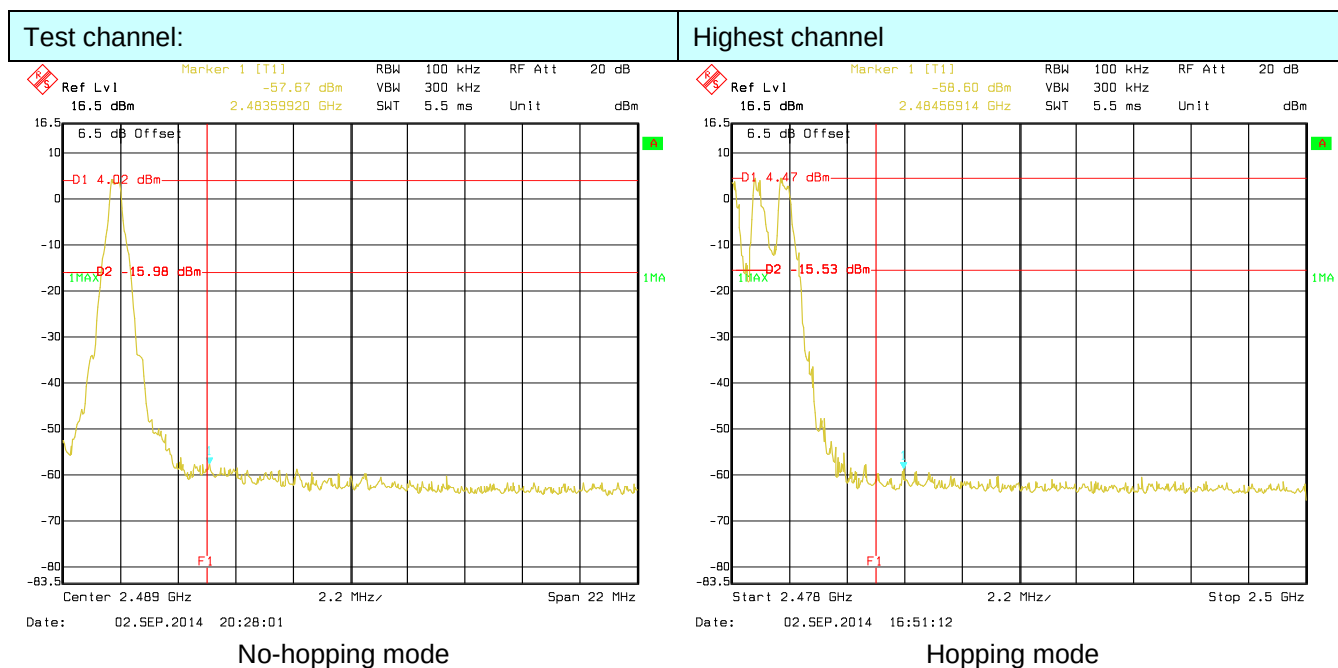
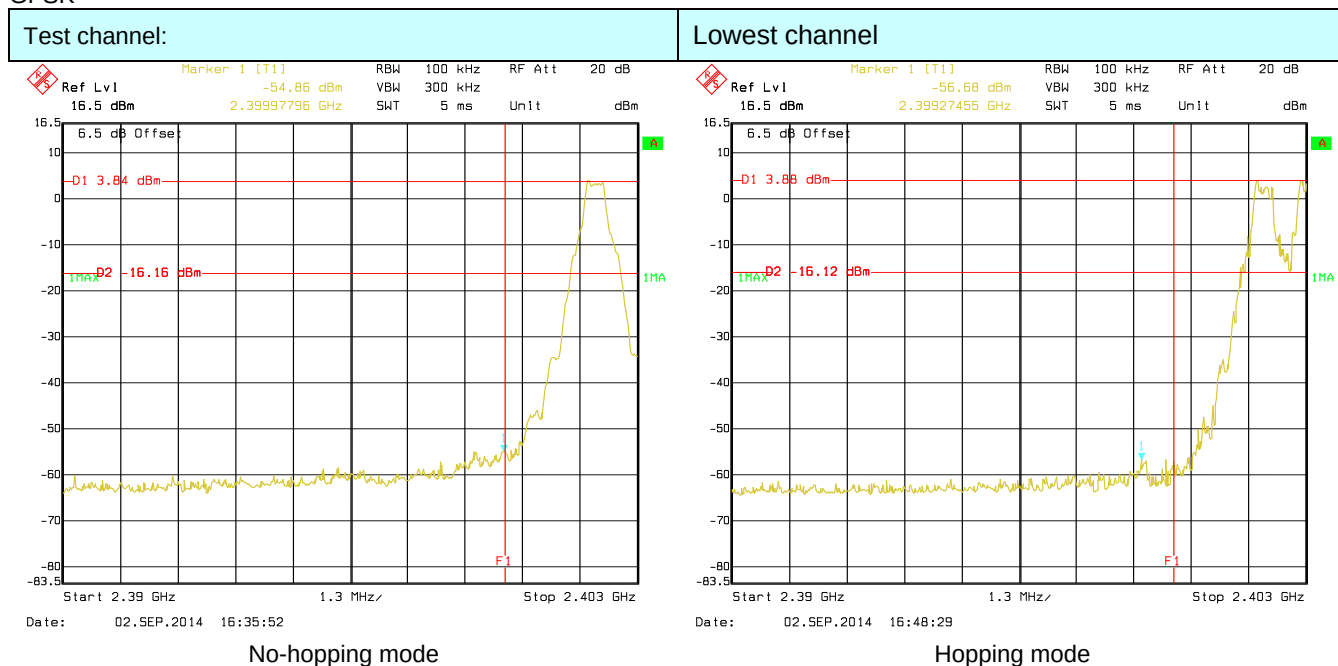
6.9 Band Edge

6.9.1 Conducted Emission Method

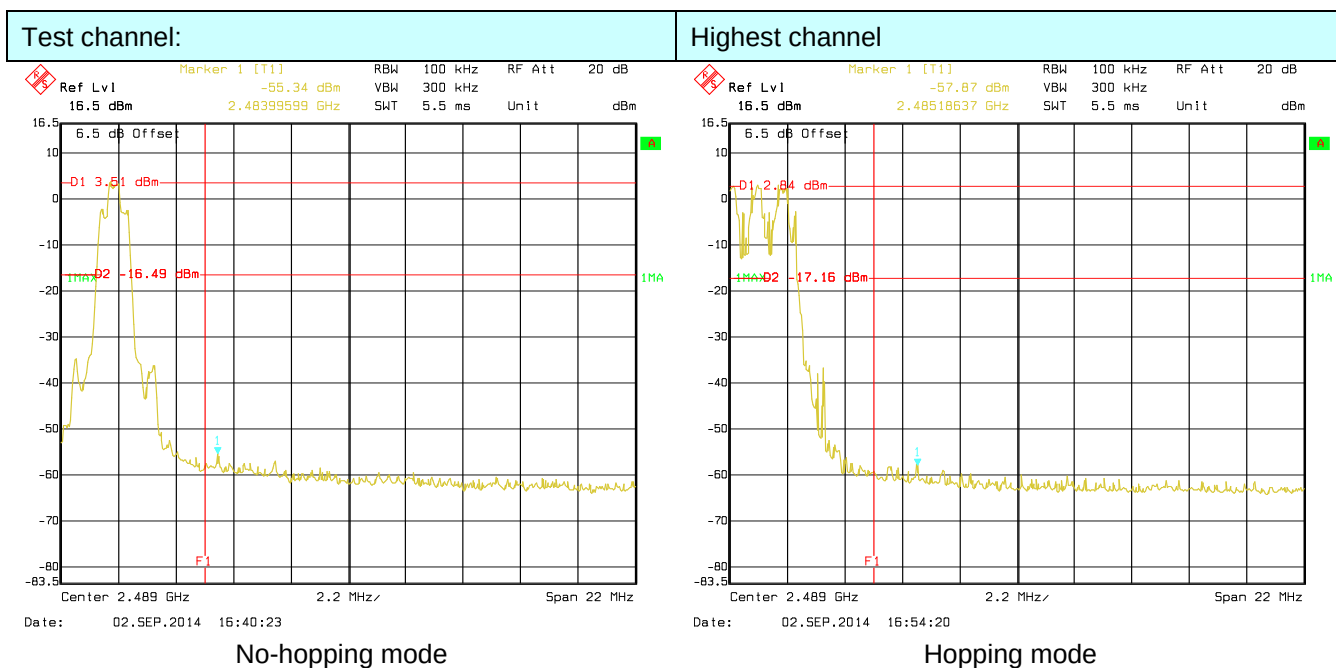
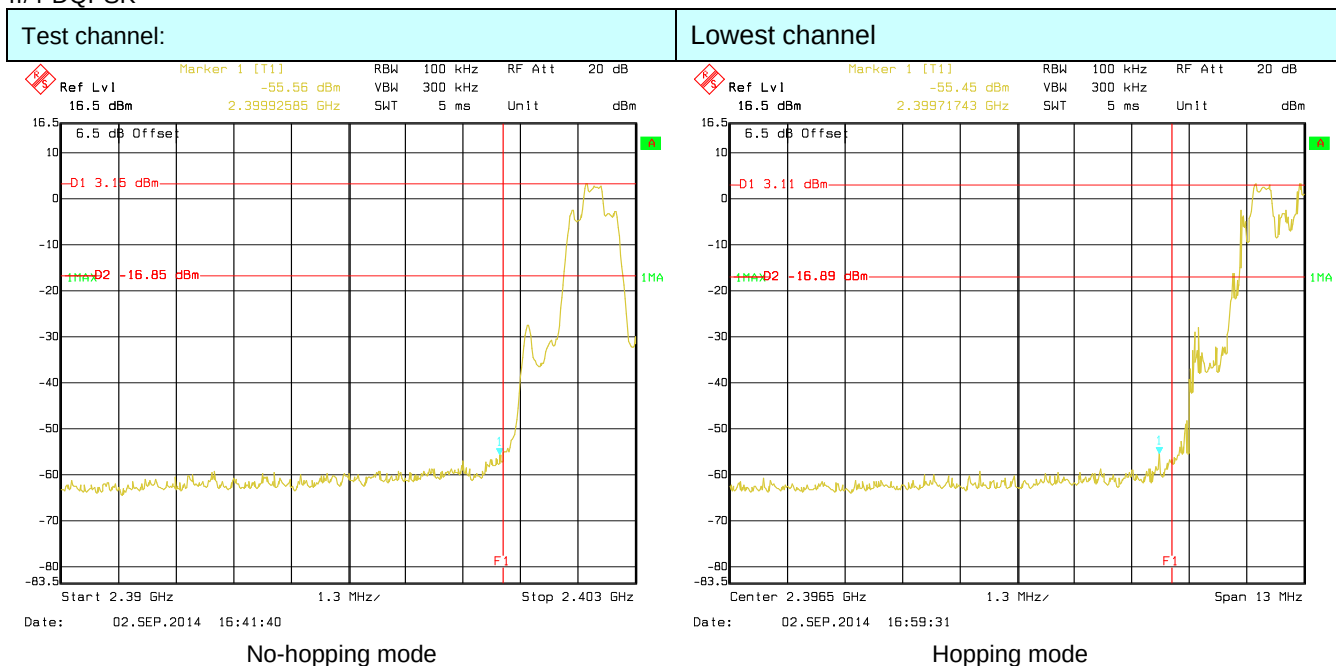
Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.4:2003 and DA00-705
Receiver setup:	RBW=100 kHz, VBW=300 kHz, Detector=Peak
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.
Test Instruments:	Refer to section 5.7 for details
Test mode:	Non-hopping mode and hopping mode
Test results:	Pass

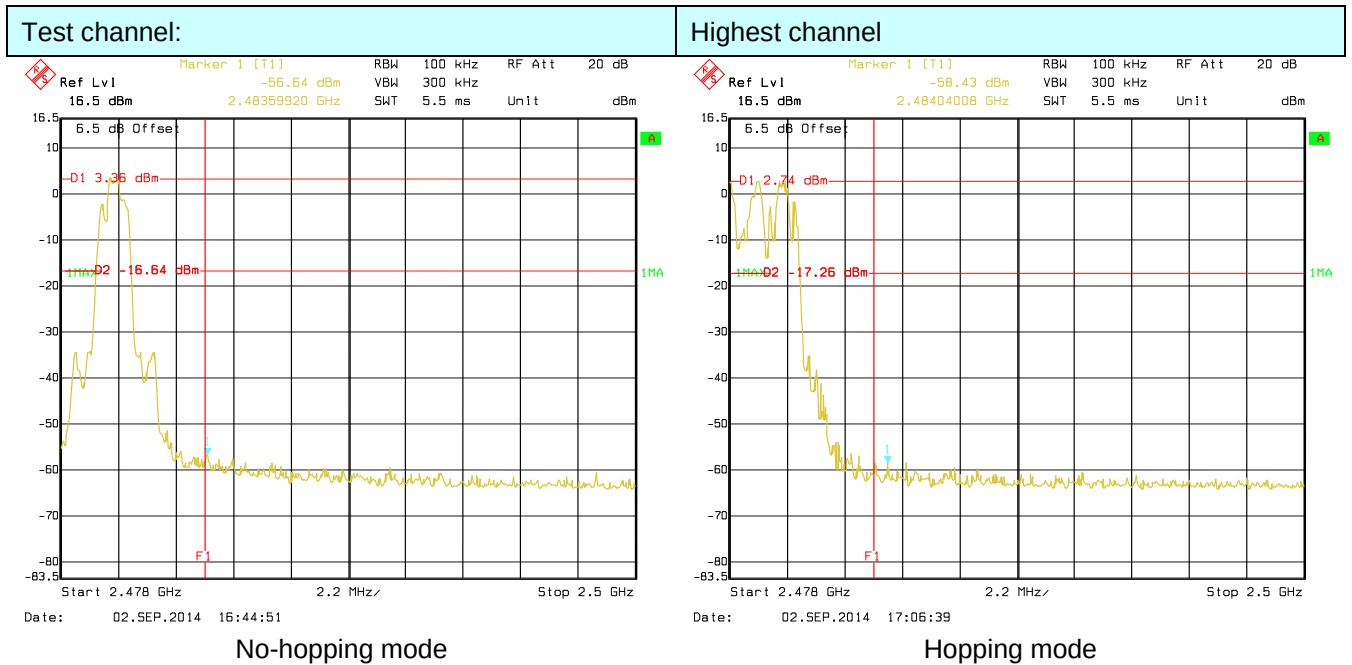
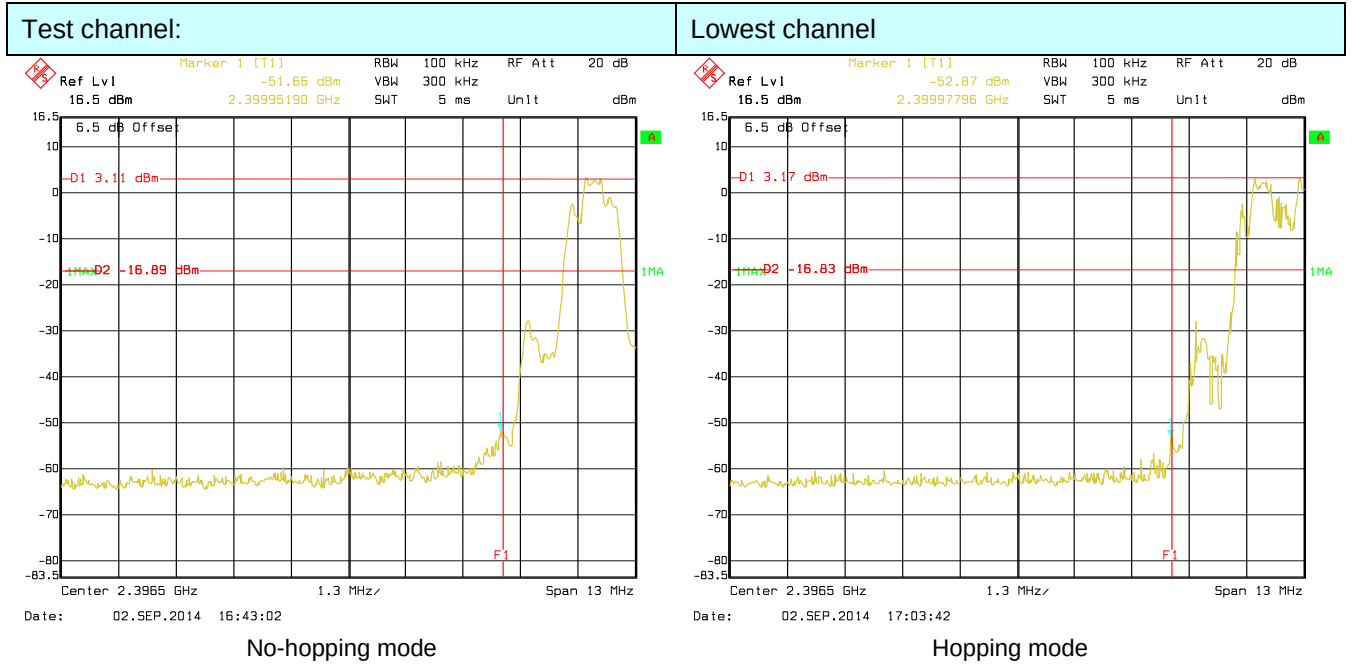
Test plot as follows:

GFSK

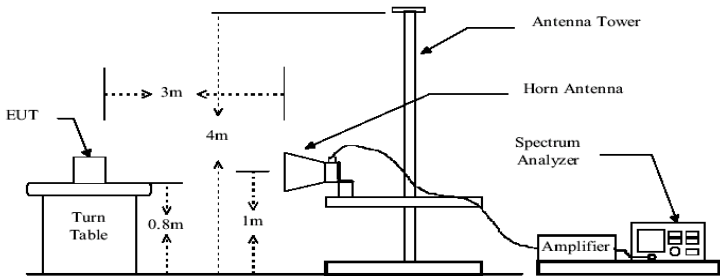


$\pi/4$ -DQPSK



8DPSK

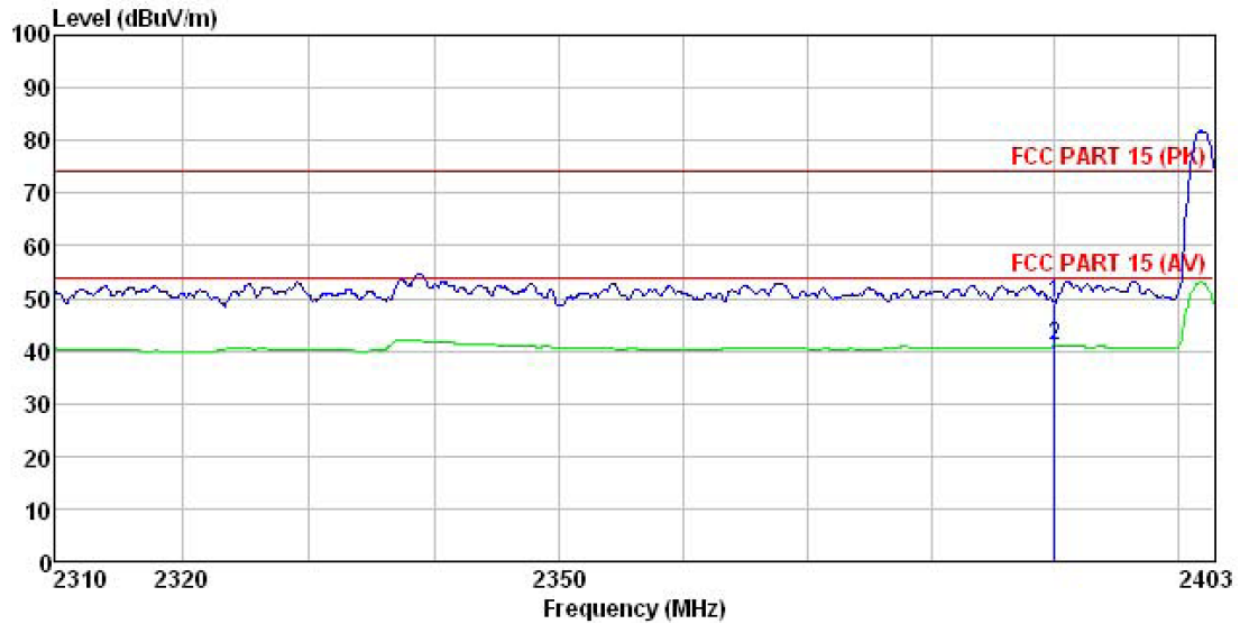
6.9.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205				
Test Method:	ANSI C63.4: 2003				
Test Frequency Range:	2.3GHz to 2.5GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		Peak	1MHz	10Hz	Average Value
Limit:	Frequency		Limit (dBuV/m @3m)		Remark
	Above 1GHz		54.00		Average Value
			74.00		Peak Value
Test setup:					
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.				
Test Instruments:	Refer to section 5.7 for details				
Test mode:	Non-hopping mode				
Test results:	Passed				

Remark:

1. During the test, pre-scan the GFSK, $\pi/4$ -DQPSK, 8DPSK, and all data were shown in report.
2. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case.

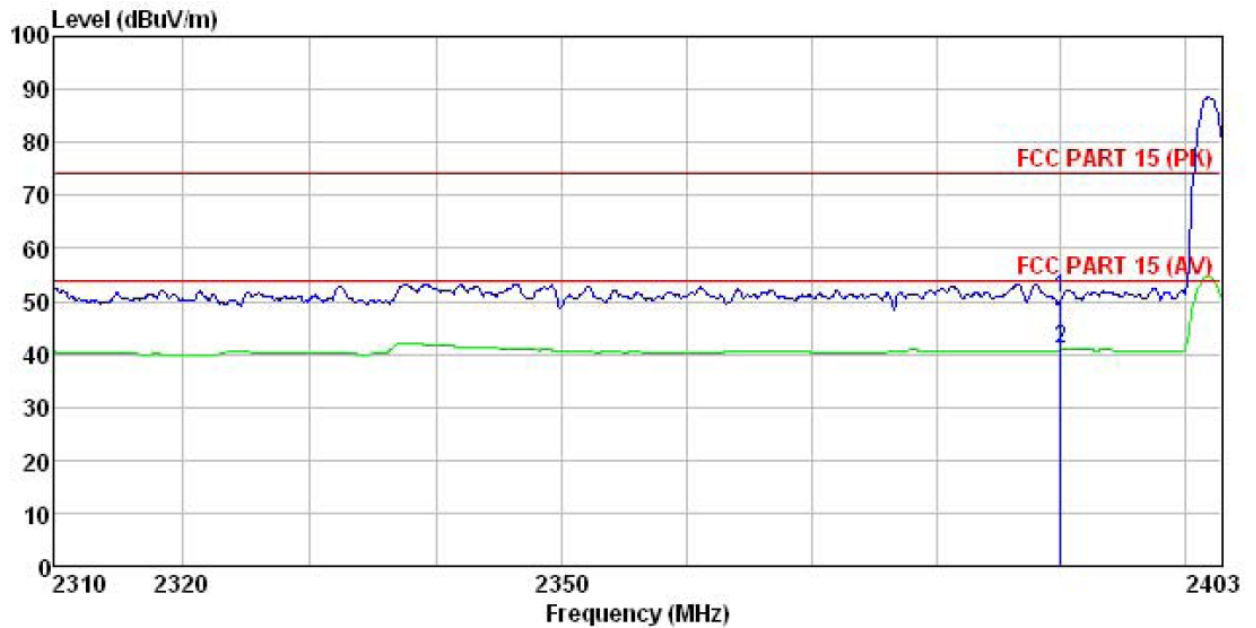
GFSK mode
Test channel: Lowest
Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL
Jobi NO. : 736RF
EUT : T97601T4
Model : Bang
Test mode : BT-DH1-L mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5°C Humi:55%
Test Engineer: Carey

	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier	Level	Limit	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	15.95	27.58	5.67	0.00	49.20	74.00	-24.80	Peak
2	2390.000	7.60	27.58	5.67	0.00	40.85	54.00	-13.15	Average

Vertical:

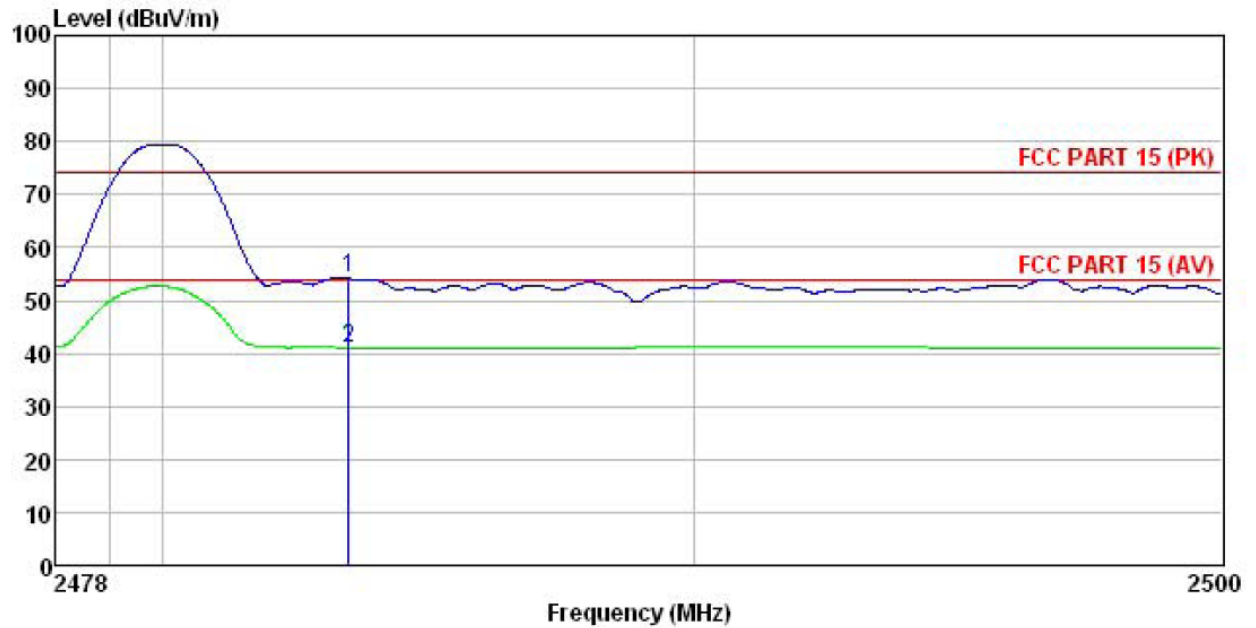


Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL
 Jobi NO. : 736RF
 EUT : T97601T4
 Model : Bang
 Test mode : BT-DH1-L mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Carey

	Freq	Read	Antenna	Cable	Preamp	Level	Limit	Over	
	MHz	Level	Factor	Loss	Factor	dBuV/m	dBuV/m	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	17.15	27.58	5.67	0.00	50.40	74.00	-23.60	Peak
2	2390.000	7.57	27.58	5.67	0.00	40.82	54.00	-13.18	Average

Test channel: Highest

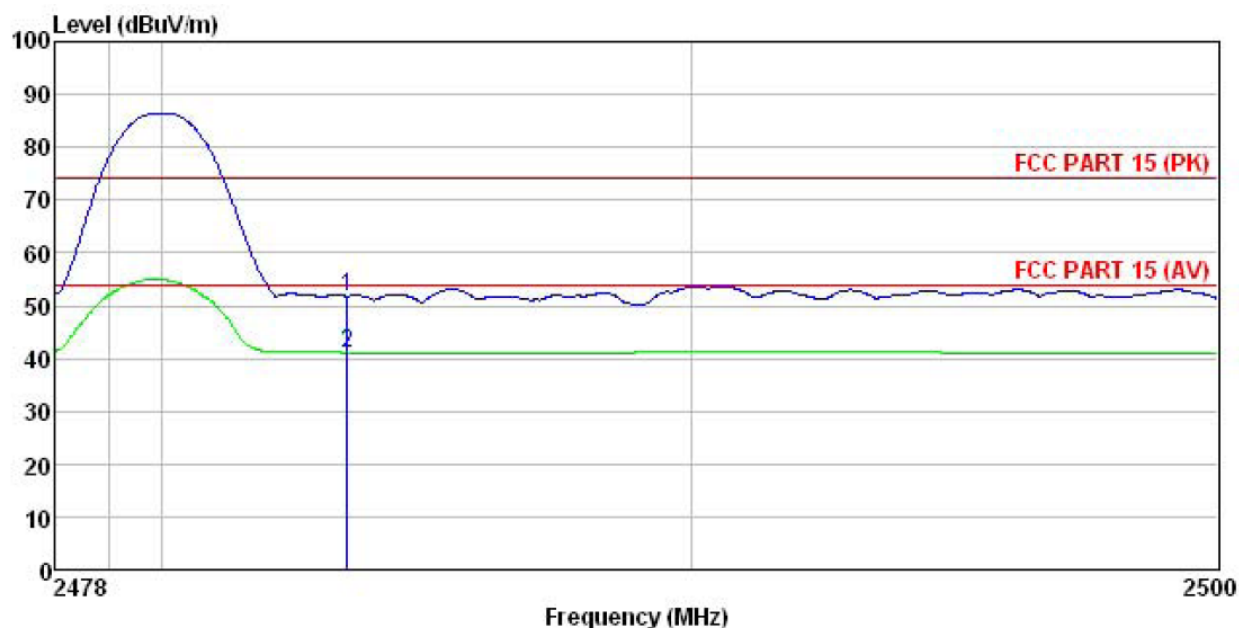
Horizontal:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL
 Jobi NO. : 736RF
 EUT : T97601T4
 Model : Bang
 Test mode : BT-DH1-H mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Carey

	Freq	ReadAntenna	Cable	Preamp	Limit	Over	
	Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m
1	2483.500	20.90	27.52	5.70	0.00	54.12	74.00 -19.88 Peak
2	2483.500	7.89	27.52	5.70	0.00	41.11	54.00 -12.89 Average

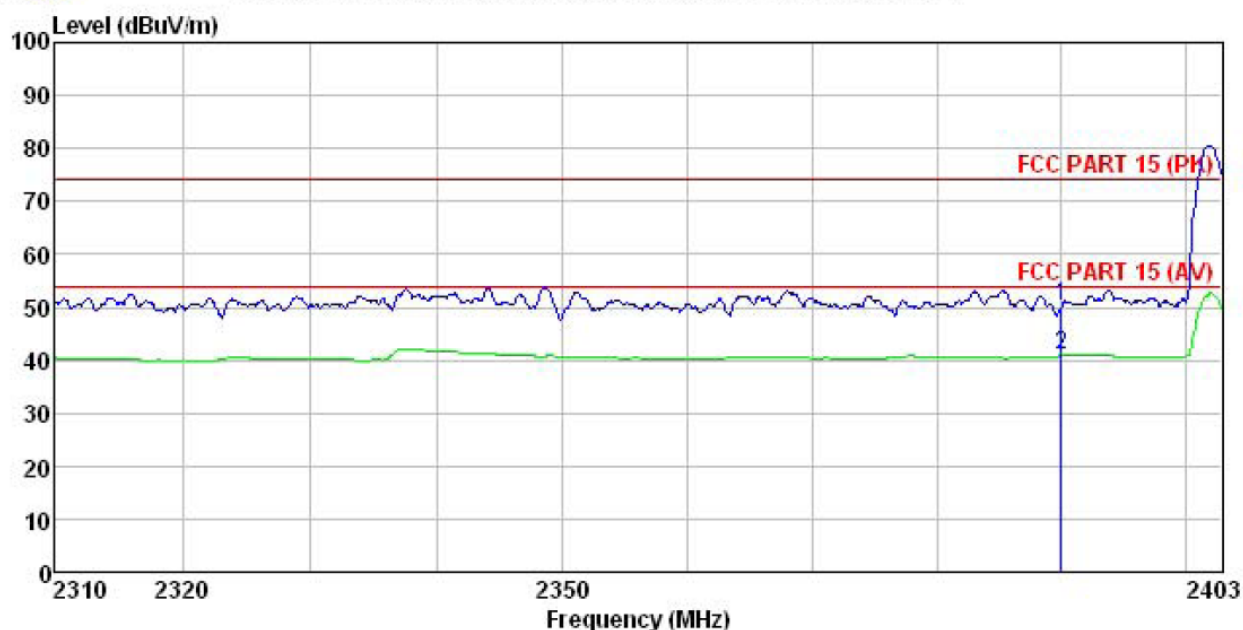
Vertical:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL
 Jobi NO. : 736RF
 EUT : T97601T4
 Model : Bang
 Test mode : BT-DH1-H mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Carey

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit	Over	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	18.57	27.52	5.70	0.00	51.79	74.00	-22.21	Peak
2	2483.500	7.89	27.52	5.70	0.00	41.11	54.00	-12.89	Average

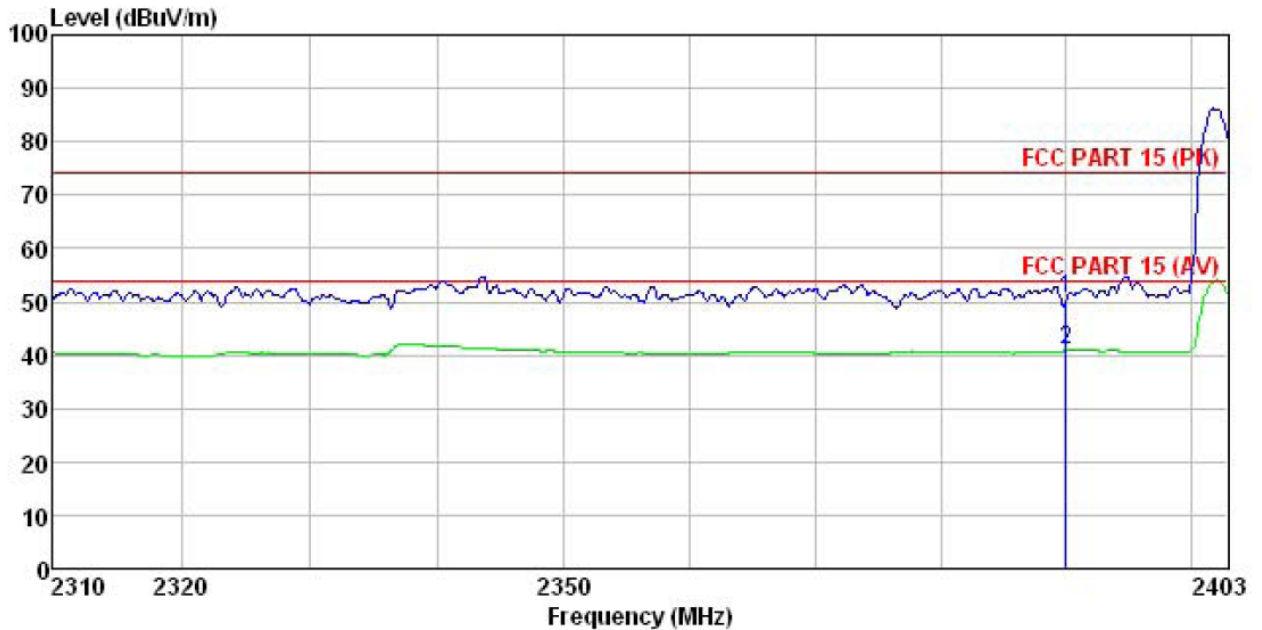
$\pi/4$ -DQPSK mode
Test channel: Lowest
Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL
Jobi NO. : 736RF
EUT : T97601T4
Model : Bang
Test mode : BT-2DH1-L mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5°C Humi:55%
Test Engineer: Carey

	ReadAntenna	Cable	Preamp		Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit
-----	-----	-----	-----	-----	-----	-----	-----
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1 2390.000	17.11	27.58	5.67	0.00	50.36	74.00	-23.64 Peak
2 2390.000	7.58	27.58	5.67	0.00	40.83	54.00	-13.17 Average

Vertical:

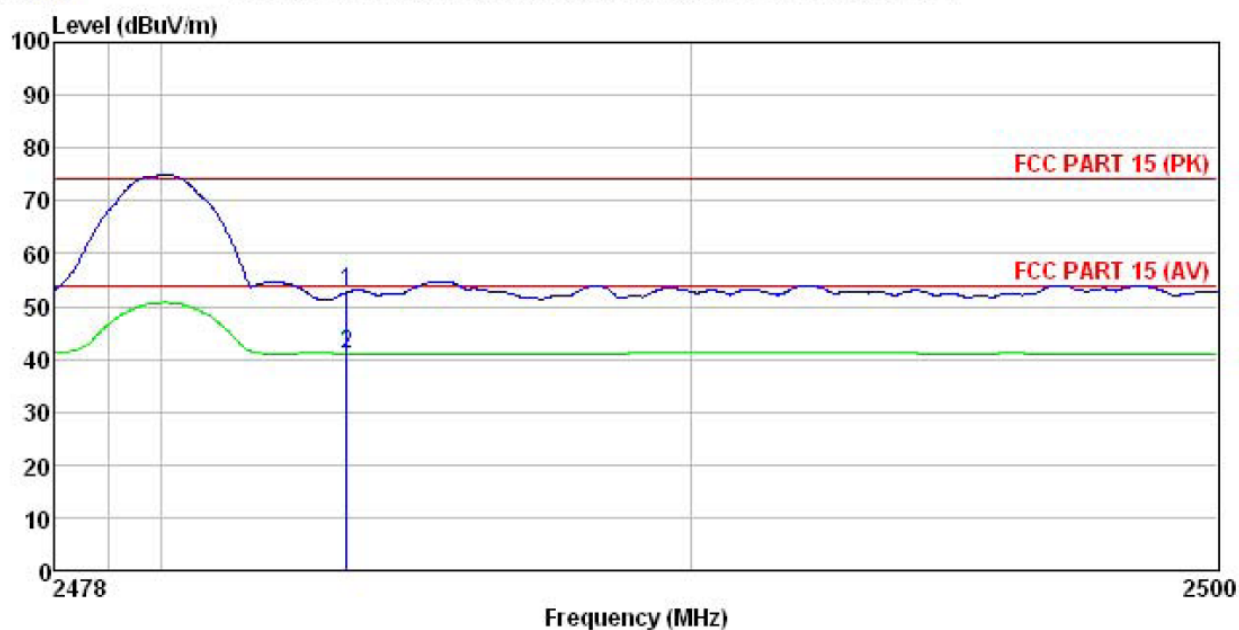


Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL
 Jobi NO. : 736RF
 EUT : T97601T4
 Model : Bang
 Test mode : BT-2DH1-L mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Carey

	Freq	Read	Antenna	Cable	Preamp	Level	Limit	Over	
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	17.28	27.58	5.67	0.00	50.53	74.00	-23.47	Peak
2	2390.000	7.62	27.58	5.67	0.00	40.87	54.00	-13.13	Average

Test channel: Highest

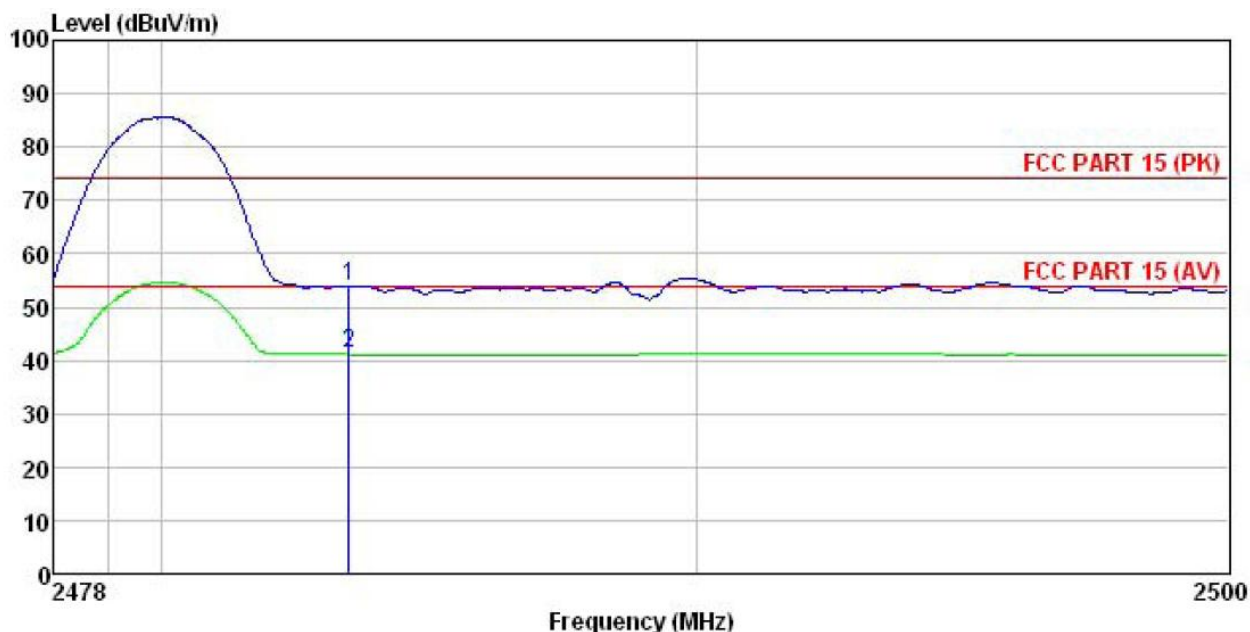
Horizontal:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL
 Jobi NO. : 736RF
 EUT : T97601T4
 Model : Bang
 Test mode : BT-2DH1-H mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Carey

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	19.47	27.52	5.70	0.00	52.69	74.00	-21.31	Peak
2	2483.500	7.88	27.52	5.70	0.00	41.10	54.00	-12.90	Average

Vertical:



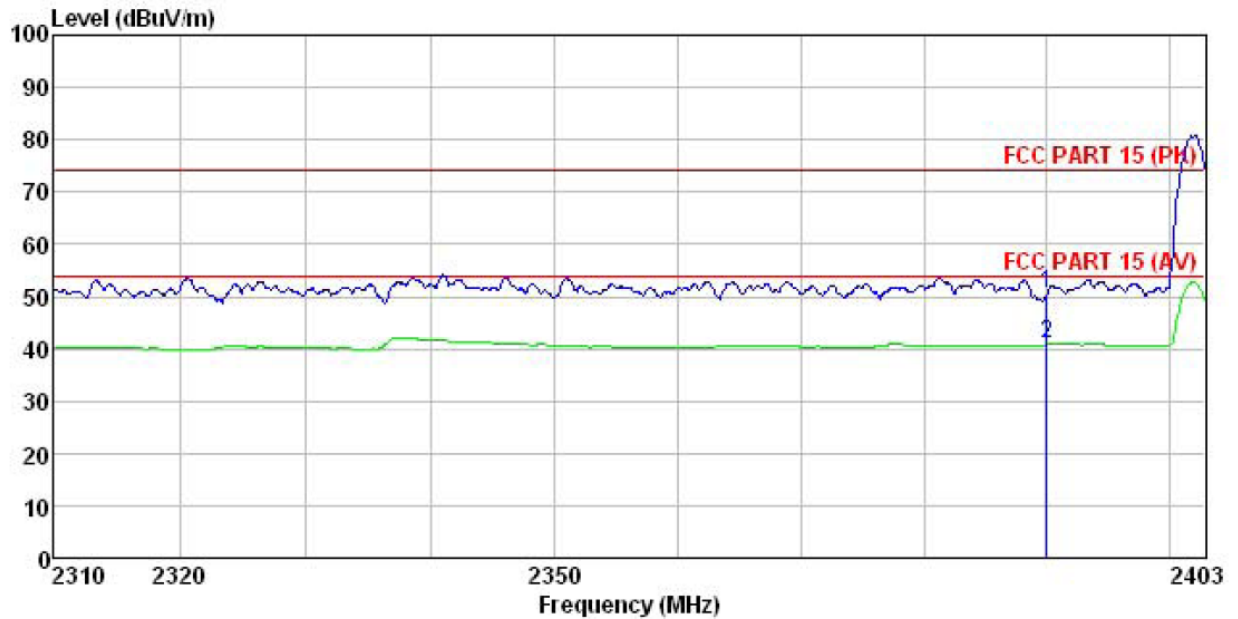
Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL
 Jobi NO. : 736RF
 EUT : T97601T4
 Model : Bang
 Test mode : BT-2DH1-H mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Carey

	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over	
		Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2483.500	20.78	27.52	5.70	0.00	54.00	74.00	-20.00 Peak
2	2483.500	7.92	27.52	5.70	0.00	41.14	54.00	-12.86 Average

8DPSK mode

Test channel: Lowest

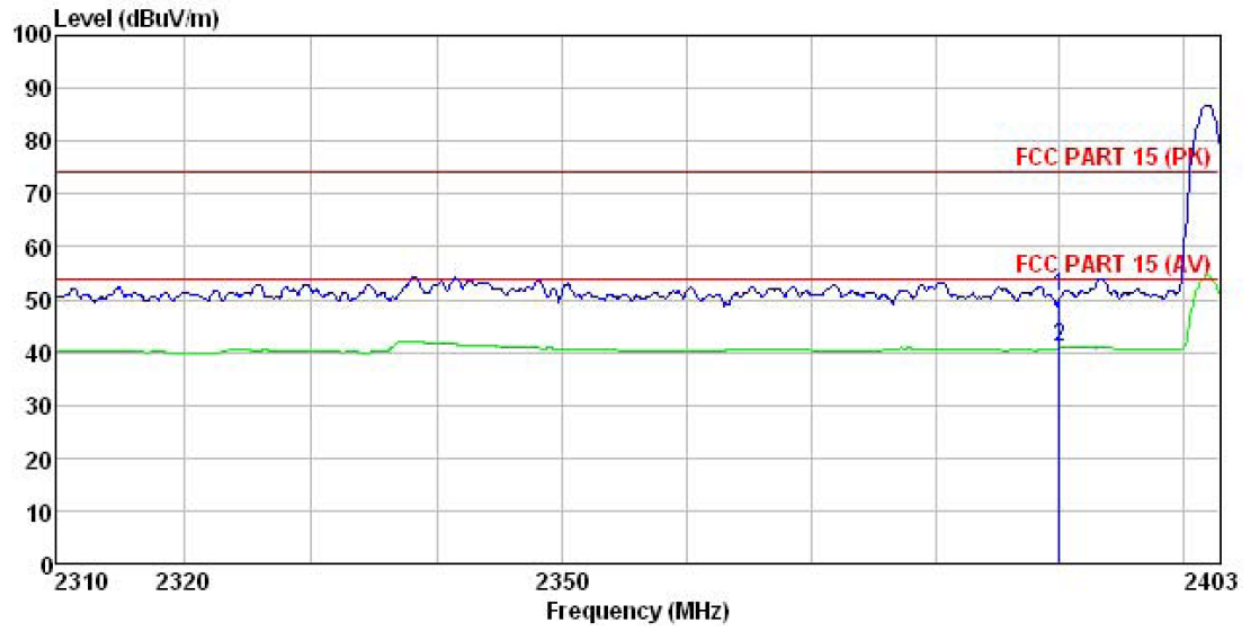
Horizontal:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL
 Jobi NO. : 736RF
 EUT : T97601T4
 Model : Bang
 Test mode : BT-3DH1-L mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Carey

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2390.000	17.34	27.58	5.67	0.00	50.59	74.00	-23.41	Peak
2	2390.000	7.55	27.58	5.67	0.00	40.80	54.00	-13.20	Average

Vertical:

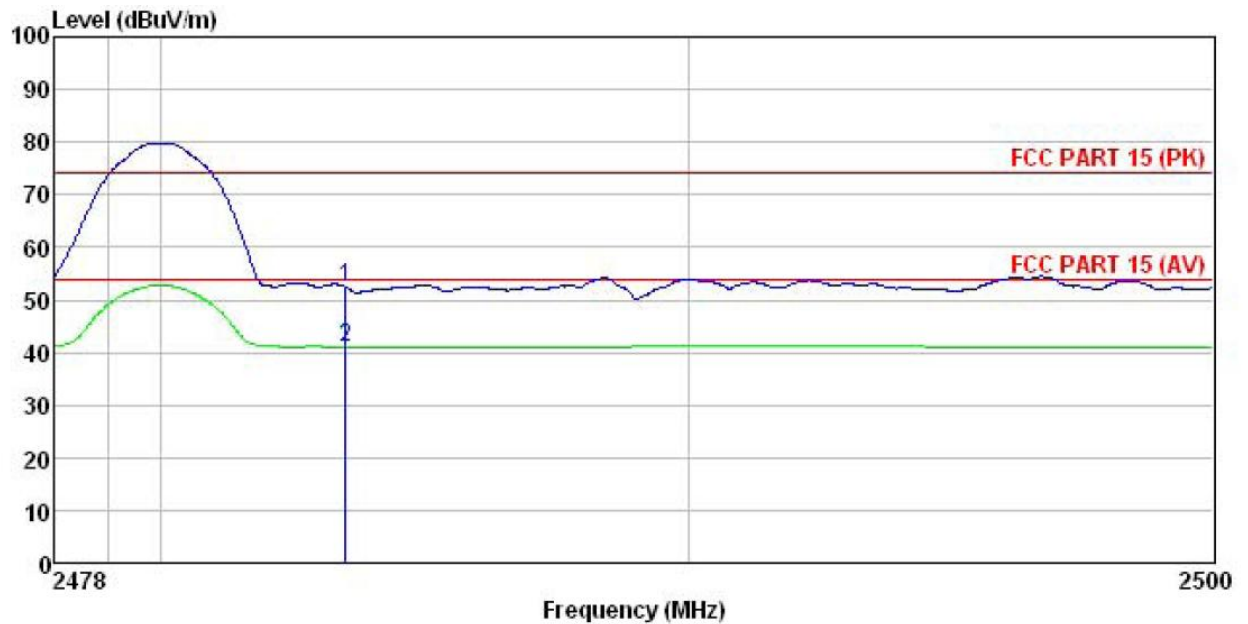


Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL
 Jobi NO. : 736RF
 EUT : T97601T4
 Model : Bang
 Test mode : BT-3DH1-L mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Carey

	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over	
		Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2390.000	17.12	27.58	5.67	0.00	50.37	74.00	-23.63 Peak
2	2390.000	7.55	27.58	5.67	0.00	40.80	54.00	-13.20 Average

Test channel: Highest

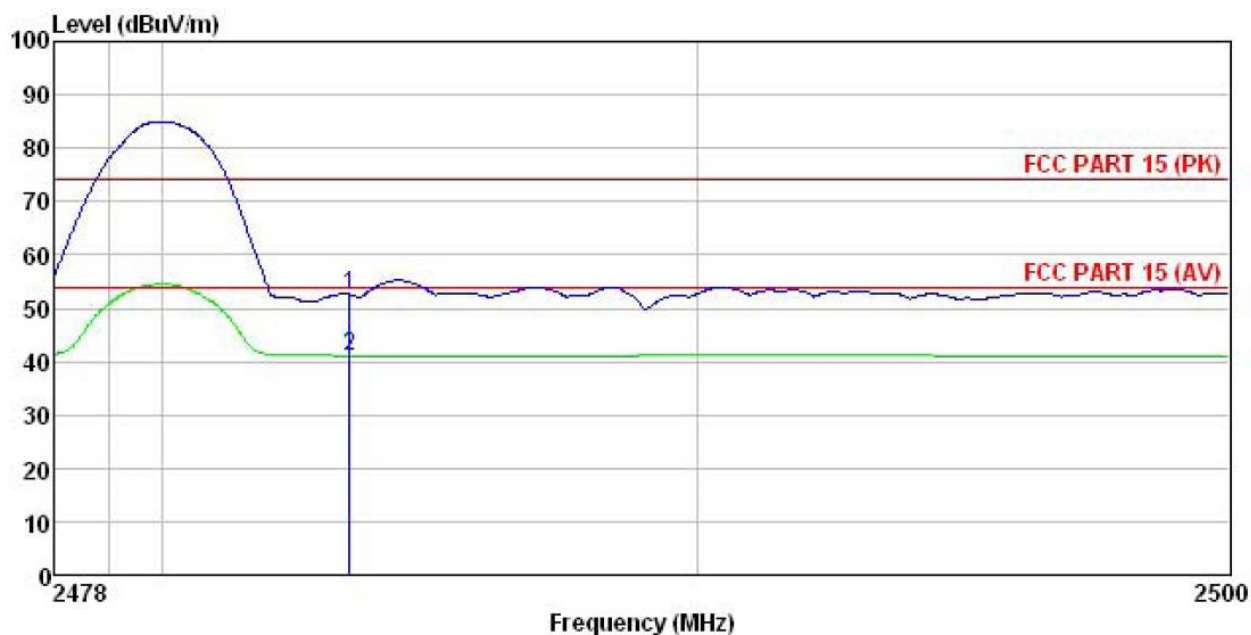
Horizontal:



Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL
 Jobi NO. : 736RF
 EUT : T97601T4
 Model : Bang
 Test mode : BT-3DH1-H mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Carey

		ReadAntenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2483.500	19.22	27.52	5.70	0.00	52.44	74.00	-21.56 Peak
2	2483.500	7.87	27.52	5.70	0.00	41.09	54.00	-12.91 Average

Vertical:

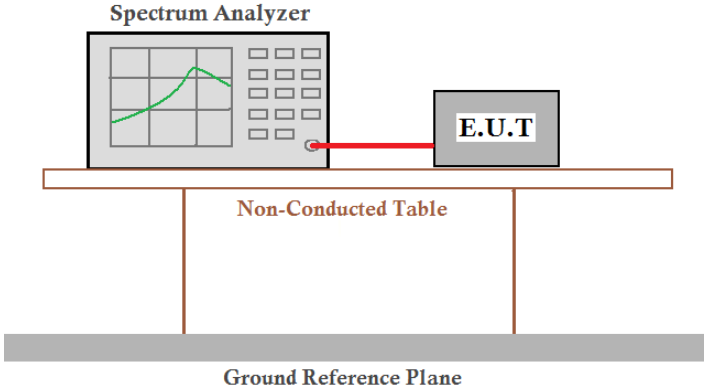


Site : 3m chamber
 Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL
 Jobi NO. : 736RF
 EUT : T97601T4
 Model : Bang
 Test mode : BT-3DH1-H mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Carey

	Freq	Read	Antenna	Cable	Preamp	Level	Limit	Over	
	MHz	Level	Factor	Loss	Factor	dBuV/m	dBuV/m	Limit	Remark
		dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2483.500	19.36	27.52	5.70	0.00	52.58	74.00	-21.42	Peak
2	2483.500	7.88	27.52	5.70	0.00	41.10	54.00	-12.90	Average

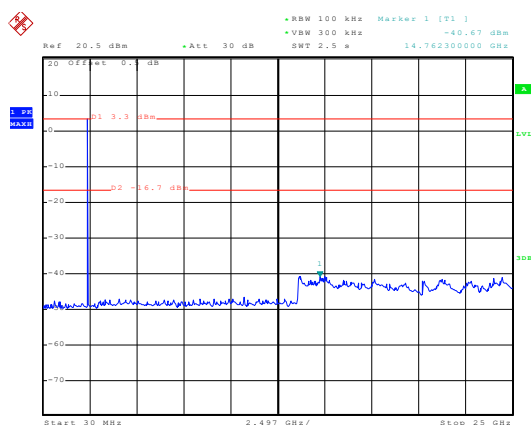
6.10 Spurious Emission

6.10.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.4:2003 and DA00-705
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	 The diagram illustrates the test setup for conducted emission measurement. A Spectrum Analyzer is connected via a red cable to an E.U.T (Equipment Under Test). Both are placed on a Non-Conducted Table, which sits on a Ground Reference Plane.
Test Instruments:	Refer to section 5.7 for details
Test mode:	Non-hopping mode
Test results:	Pass

GFSK

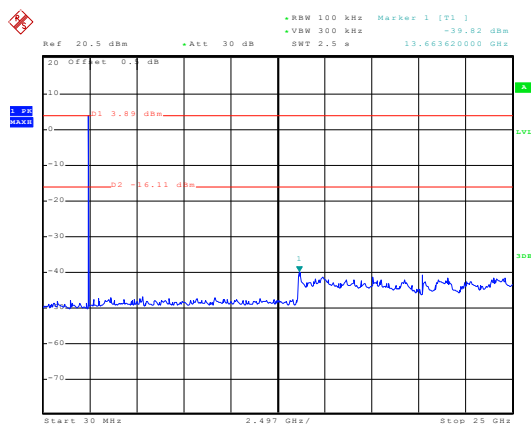
Lowest channel



Date: 2.SEP.2014 20:14:44

30MHz~25GHz

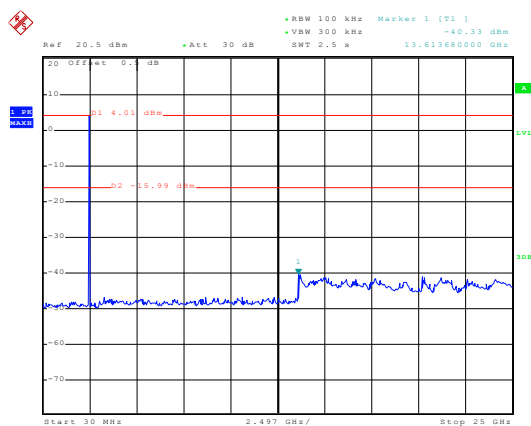
Middle channel



Date: 2.SEP.2014 20:15:53

30MHz~25GHz

Highest channel

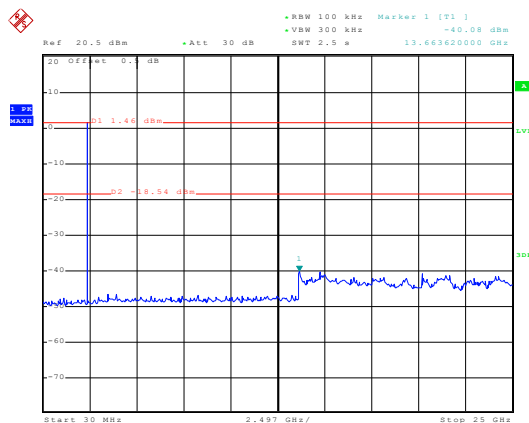


Date: 2.SEP.2014 20:17:35

30MHz~25GHz

$\pi/4$ -DQPSK

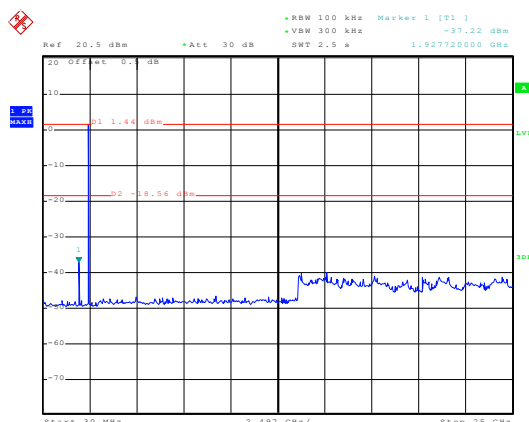
Lowest channel



Date: 2.SEP.2014 20:19:59

30MHz~25GHz

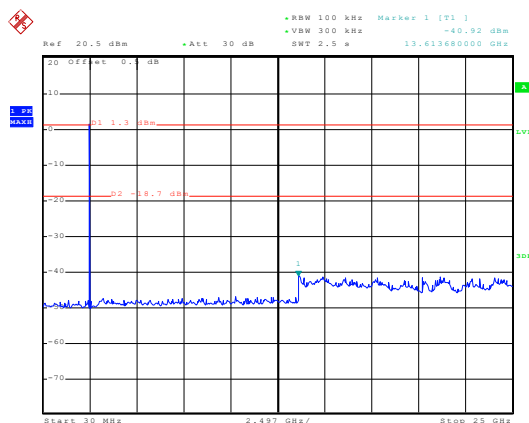
Middle channel



Date: 2.SEP.2014 20:22:09

30MHz~25GHz

Highest channel

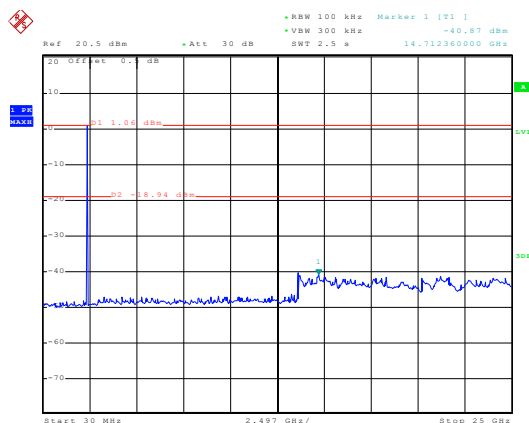


Date: 2.SEP.2014 20:23:21

30MHz~25GHz

8DPSK

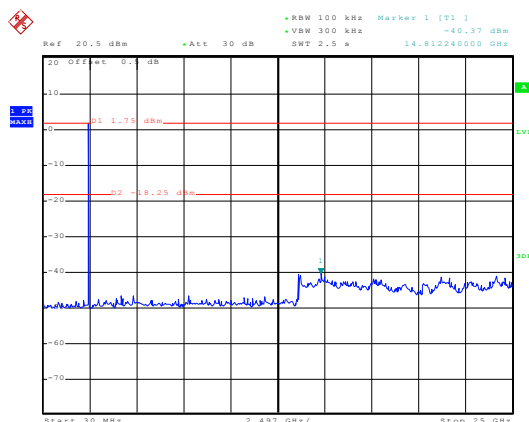
Lowest channel



Date: 2.SEP.2014 20:24:58

30MHz~25GHz

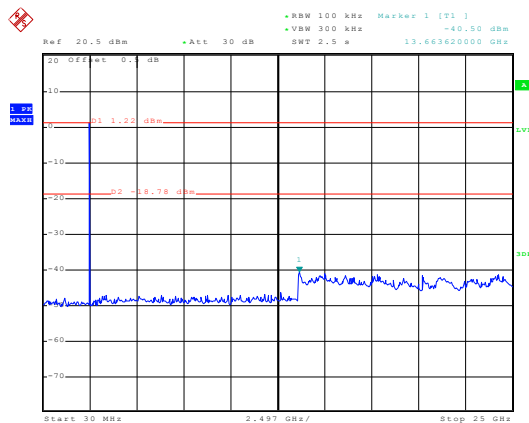
Middle channel



Date: 2.SEP.2014 20:25:42

30MHz~25GHz

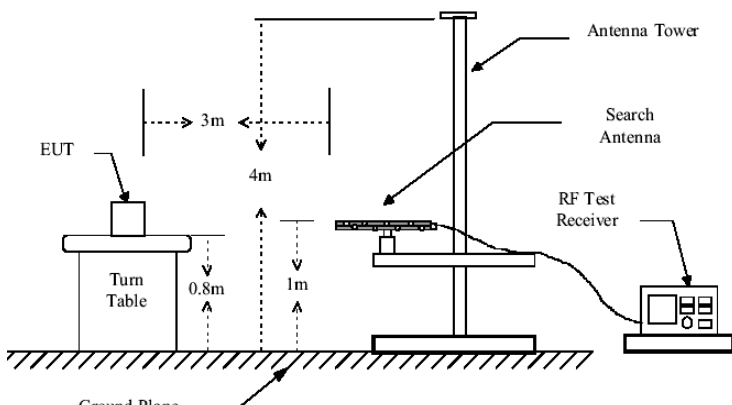
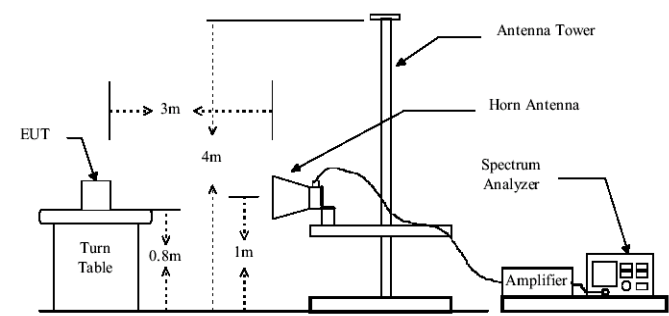
Highest channel



Date: 2.SEP.2014 20:26:49

30MHz~25GHz

6.10.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.4: 2003				
Test Frequency Range:	9 kHz to 25 GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		Peak	1MHz	10Hz	Average Value
Limit:	Frequency		Limit (dBuV/m @3m)		Remark
	30MHz-88MHz		40.0		Quasi-peak Value
	88MHz-216MHz		43.5		Quasi-peak Value
	216MHz-960MHz		46.0		Quasi-peak Value
	960MHz-1GHz		54.0		Quasi-peak Value
	Above 1GHz		54.0		Average Value
			74.0		Peak Value
Test setup:	Below 1GHz				
					
	Above 1GHz				
					

Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test Instruments:	Refer to section 5.7 for details
Test mode:	Non-hopping mode
Test results:	Pass

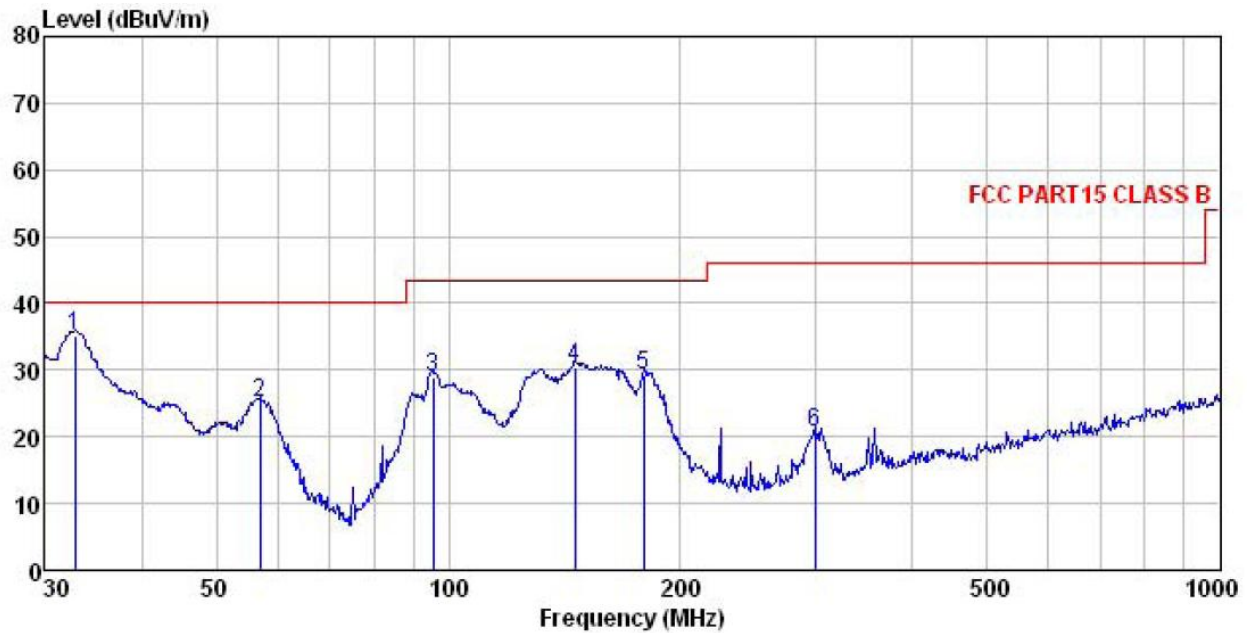
Remark:

1. During the test, pre-scan the GFSK, $\pi/4$ -DQPSK, 8DPSK modulation, and found the GFSK modulation is the worst case.
2. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis is the worst case.
3. 9 kHz to 30 MHz is noise floor, so only shows the data of above 30MHz in this report.

Measurement data:

Below 1GHz

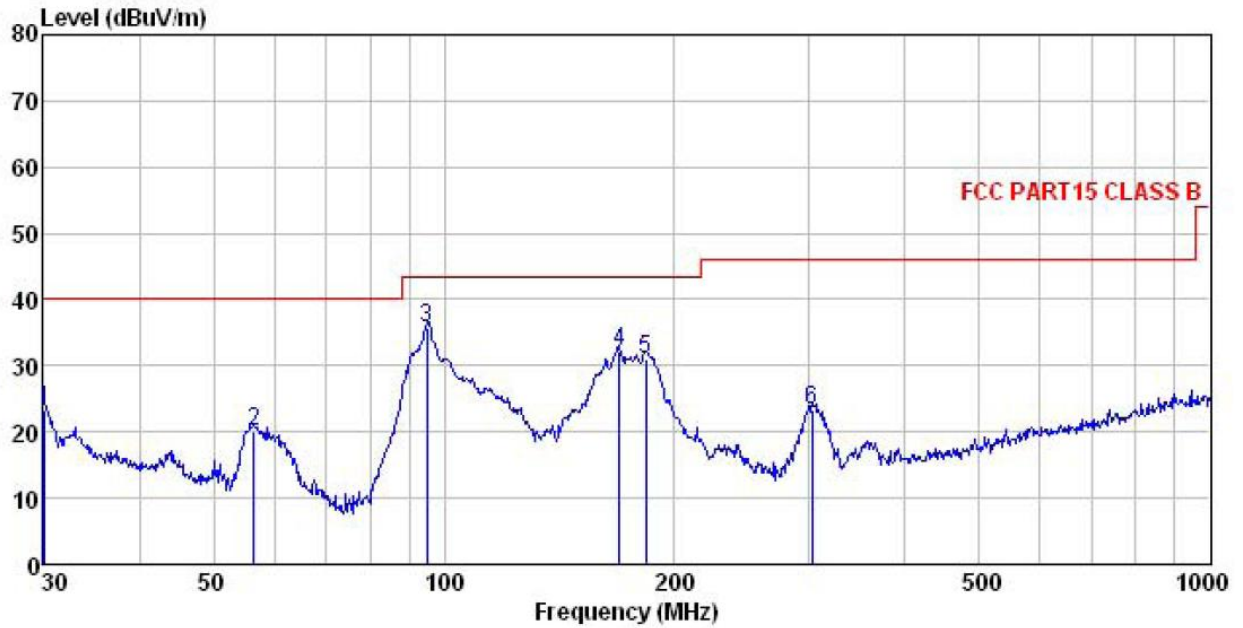
Vertical:



Site : 3m chamber
 Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) VERTICAL
 Jobi NO. : 736RF
 EUT : T97601T4
 Model : Bang
 Test mode : BT mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Carey

	ReadAntenna	Cable	Preamp		Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	32.749	52.26	12.31	0.46	29.96	35.07	40.00
2	56.991	41.20	12.91	0.67	29.79	24.99	40.00
3	95.427	44.59	12.87	0.93	29.55	28.84	43.50
4	145.861	50.14	8.23	1.30	29.24	30.43	43.50
5	179.386	47.20	9.62	1.36	28.98	29.20	43.50
6	298.268	34.39	13.00	1.76	28.45	20.70	46.00

Horizontal:



Site : 3m chamber
 Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) HORIZONTAL
 Jobi NO. : 736RF
 EUT : T97601T4
 Model : Bang
 Test mode : BT mode
 Power Rating : AC 120V/60Hz
 Environment : Temp:25.5°C Humi:55%
 Test Engineer: Carey

		ReadAntenna	Cable	Preamp		Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
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MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	30.105	40.56	12.33	0.43	29.98	23.34	40.00	-16.66 QP
2	56.395	36.26	12.95	0.66	29.79	20.08	40.00	-19.92 QP
3	95.093	51.52	12.84	0.93	29.55	35.74	43.50	-7.76 QP
4	169.599	50.93	8.95	1.35	29.05	32.18	43.50	-11.32 QP
5	183.201	48.79	9.92	1.36	28.95	31.12	43.50	-12.38 QP
6	302.481	37.04	13.08	1.78	28.45	23.45	46.00	-22.55 QP

Above 1GHz:

Test channel:	Lowest	Level:	Peak
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Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4804.00	48.93	31.53	8.90	40.24	49.12	74.00	-24.88	Vertical
4804.00	47.41	31.53	8.90	40.24	47.60	74.00	-26.40	Horizontal

Test channel:	Lowest	Level:	Average
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Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4804.00	38.87	31.53	8.90	40.24	39.06	54.00	-14.94	Vertical
4804.00	37.84	31.53	8.90	40.24	38.03	54.00	-15.97	Horizontal

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

Test channel:	Middle	Level:	Peak
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Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4882.00	47.07	31.58	8.98	40.15	47.48	74.00	-26.52	Vertical
4882.00	46.04	31.58	8.98	40.15	46.45	74.00	-27.55	Horizontal

Test channel:	Middle	Level:	Average
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Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4882.00	36.93	31.58	8.98	40.15	37.34	54.00	-16.66	Vertical
4882.00	36.25	31.58	8.98	40.15	36.66	54.00	-17.34	Horizontal

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

Test channel:	Highest	Level:	Peak
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Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4960.00	45.76	31.69	9.08	40.03	46.50	74.00	-27.50	Vertical
4960.00	47.28	31.69	9.08	40.03	48.02	74.00	-25.98	Horizontal

Test channel:	Highest	Level:	Average
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Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4960.00	36.28	31.69	9.08	40.03	37.02	54.00	-16.98	Vertical
4960.00	37.52	31.69	9.08	40.03	38.26	54.00	-15.74	Horizontal

Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*