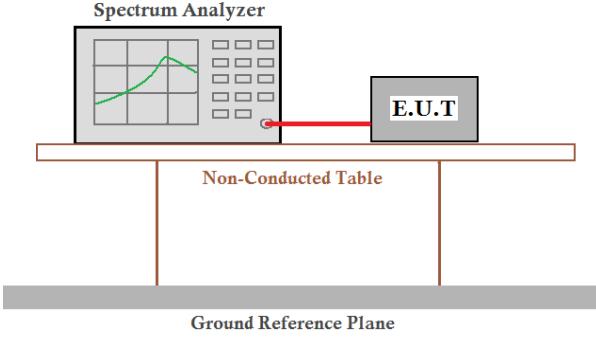


6.9 Band Edge

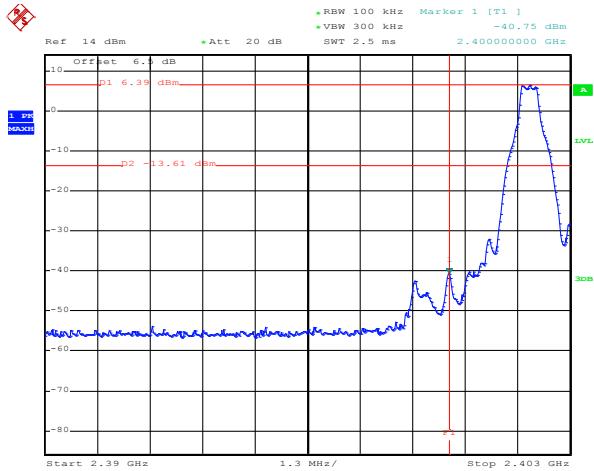
6.9.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2013 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:	
Test Instruments:	Refer to section 5.7 for details
Test mode:	Non-hopping mode and hopping mode
Test results:	Pass

Test plot as follows:

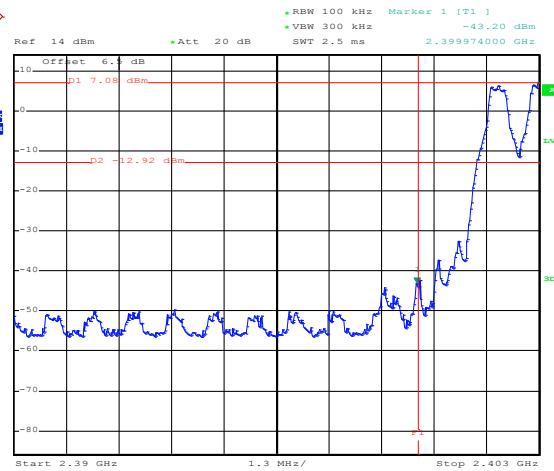
GFSK

Lowest Channel



Date: 4.JAN.2017 11:05:14

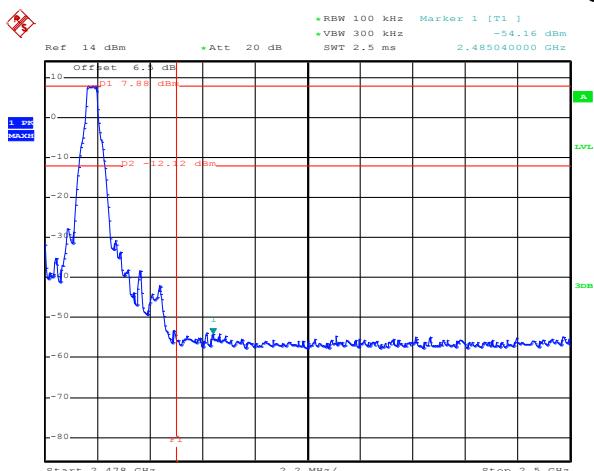
No-hopping mode



Date: 4.JAN.2017 11:03:20

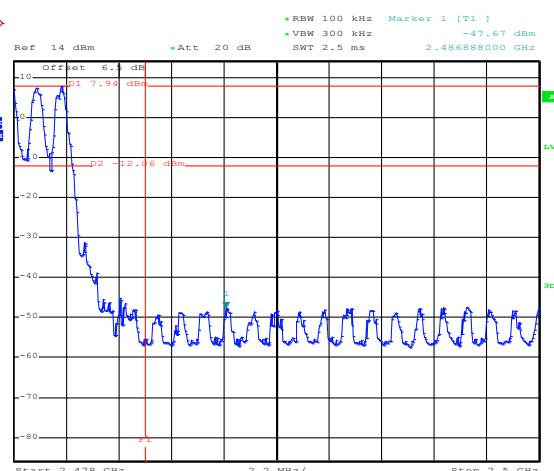
Hopping mode

Highest Channel



Date: 4.JAN.2017 11:06:28

No-hopping mode

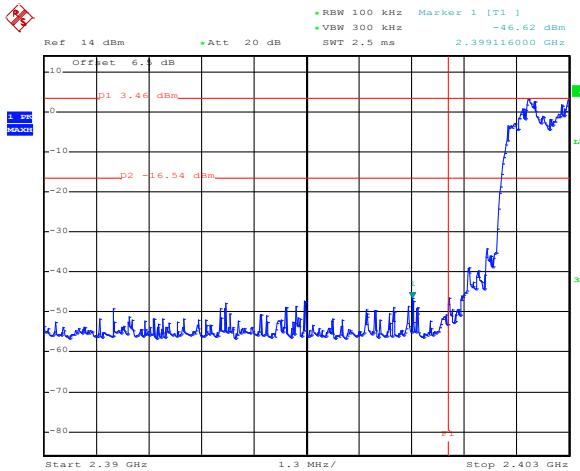
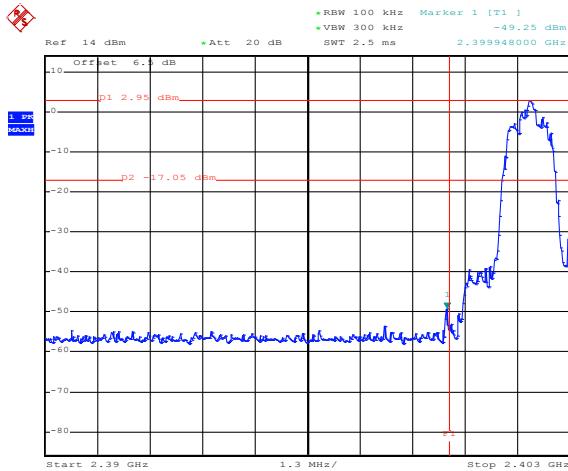


Date: 4.JAN.2017 11:07:26

Hopping mode

$\pi/4$ -DQPSK

Lowest Channel



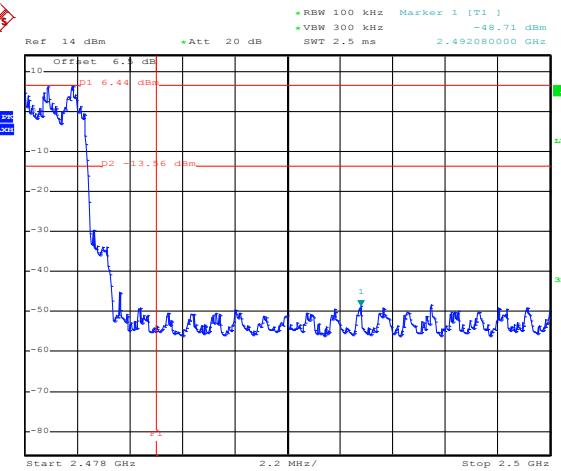
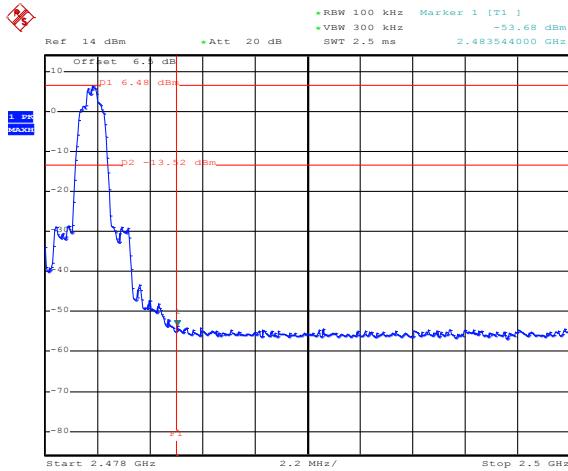
Date: 4.JAN.2017 11:25:55

No-hopping mode

Date: 4.JAN.2017 11:24:22

Hopping mode

Highest Channel



Date: 4.JAN.2017 11:10:11

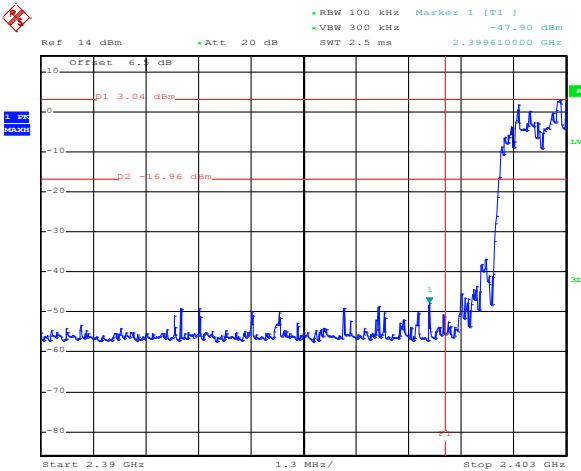
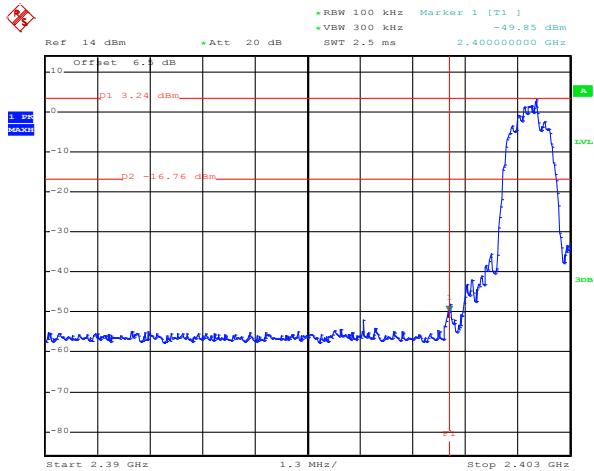
No-hopping mode

Date: 4.JAN.2017 11:12:06

Hopping mode

8DPSK

Lowest Channel



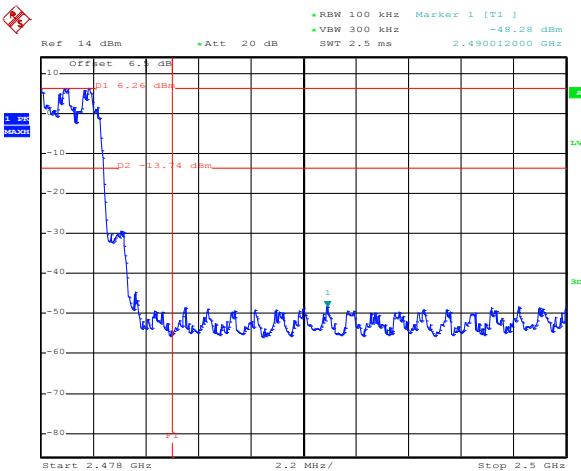
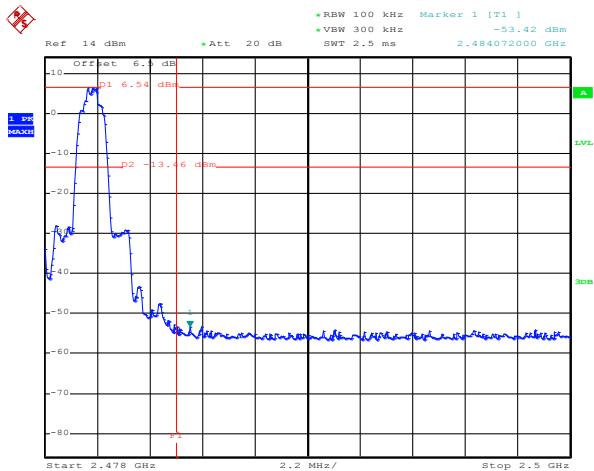
Date: 4.JAN.2017 11:20:26

No-hopping mode

Date: 4.JAN.2017 11:21:02

Hopping mode

Highest Channel



Date: 4.JAN.2017 11:18:07

No-hopping mode

Date: 4.JAN.2017 11:16:00

Hopping mode

6.9.2 Radiated Emission Method

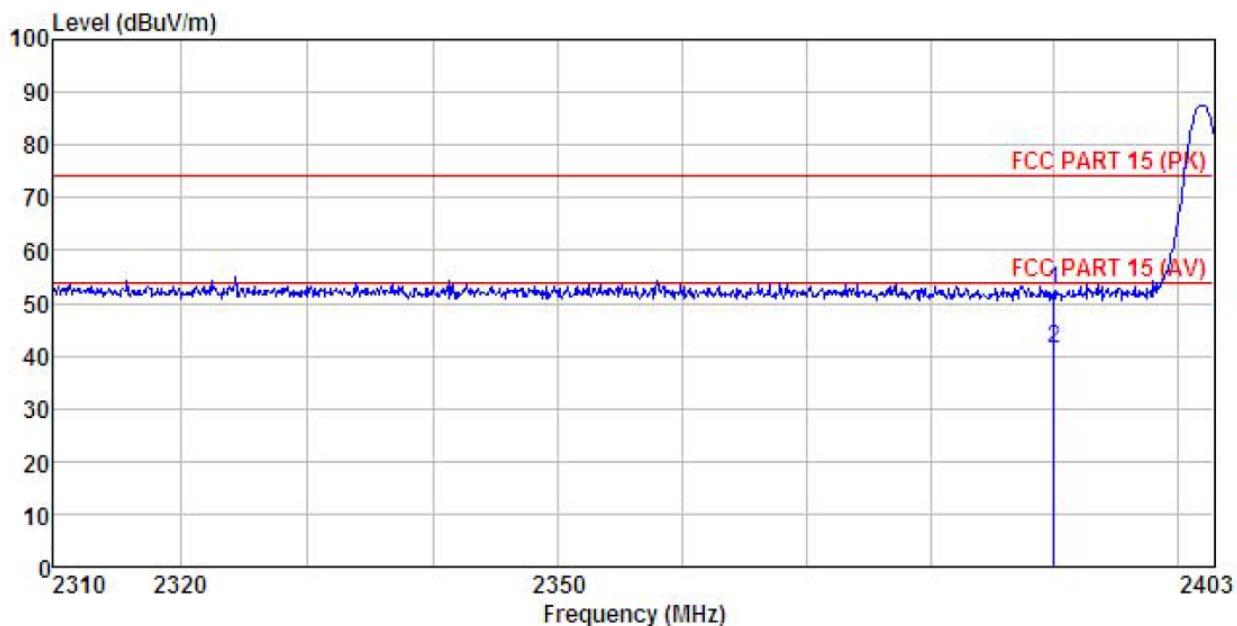
Test Requirement:	FCC Part 15 C Section 15.209 and 15.205								
Test Method:	ANSI C63.10: 2013								
Test Frequency Range:	2.3GHz to 2.5GHz								
Test site:	Measurement Distance: 3m								
Receiver setup:	Frequency	Detector	RBW	VBW	Remark				
	Above 1GHz	Peak	1MHz	3MHz	Peak Value				
		RMS	1MHz	3MHz	Average Value				
Limit:	Frequency	Limit (dBuV/m @ 3m)		Remark					
	Above 1GHz	54.00		Average Value					
		74.00		Peak Value					
Test setup:									
Test Procedure:	<ol style="list-style-type: none"> The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 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. 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. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 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:

- During the test, pre-scan the GFSK, π/4-DQPSK, 8DPSK, and all data were shown in report.
- 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**

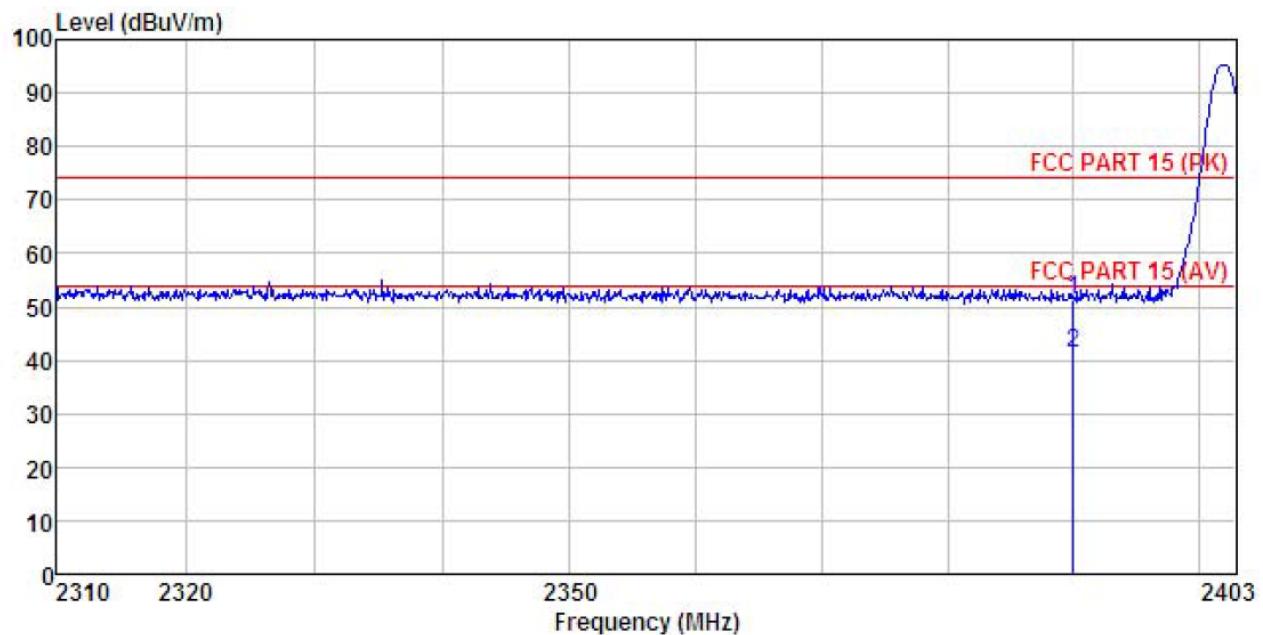
Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL
EUT : SB340 USB ADAPTER
Model : SB340
Test mode : DH1-L Mode
Power Rating : AC120V / 60Hz
Environment : Temp:25.5°C Humi:55%
Test Engineer: Carey
REMARK :

	Read	Antenna	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	24.13	23.68	4.69	0.00	52.50	74.00	-21.50 Peak
2	2390.000	13.14	23.68	4.69	0.00	41.51	54.00	-12.49 Average

Vertical:

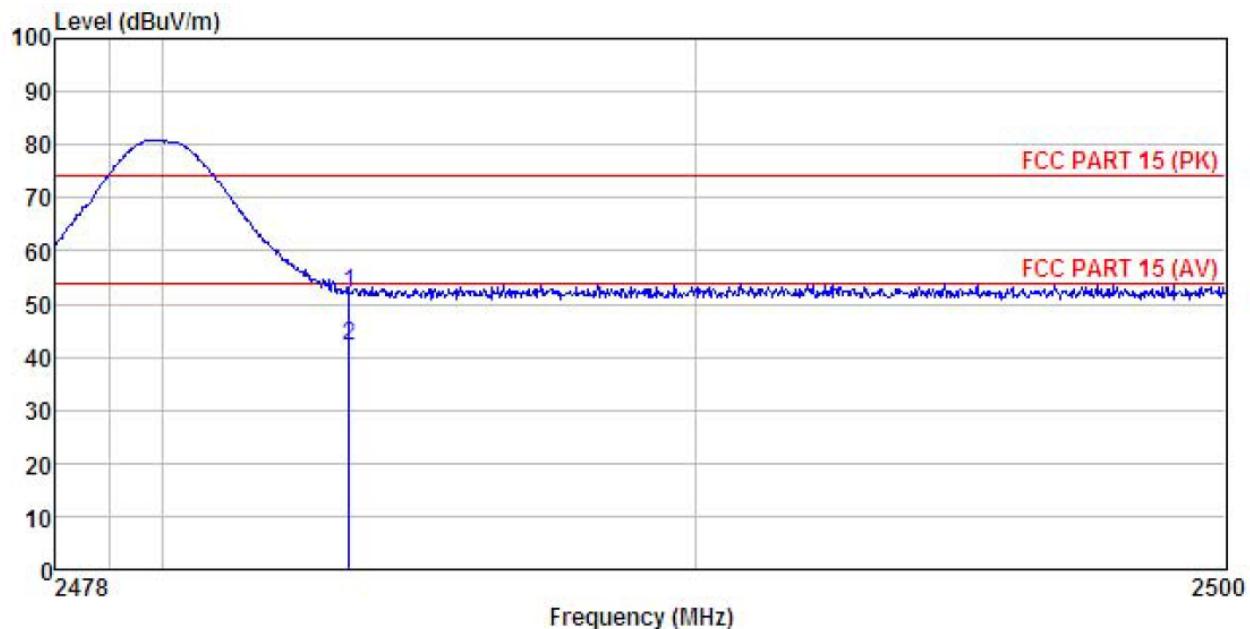


Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL
EUT : SB340 USB ADAPTER
Model : SB340
Test mode : DH1-L Mode
Power Rating : AC120V / 60Hz
Environment : Temp:25.5°C Humi:55%
Test Engineer: Carey
REMARK :

	ReadAntenna	Cable	Preamp	Limit	Over	
Freq	Level	Factor	Loss	Level	Line	Limit
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m
1	2390.000	23.10	23.68	4.69	0.00	51.47
2	2390.000	13.03	23.68	4.69	0.00	41.40
					74.00	-22.53
					54.00	-12.60
						Peak Average

Test channel: Highest

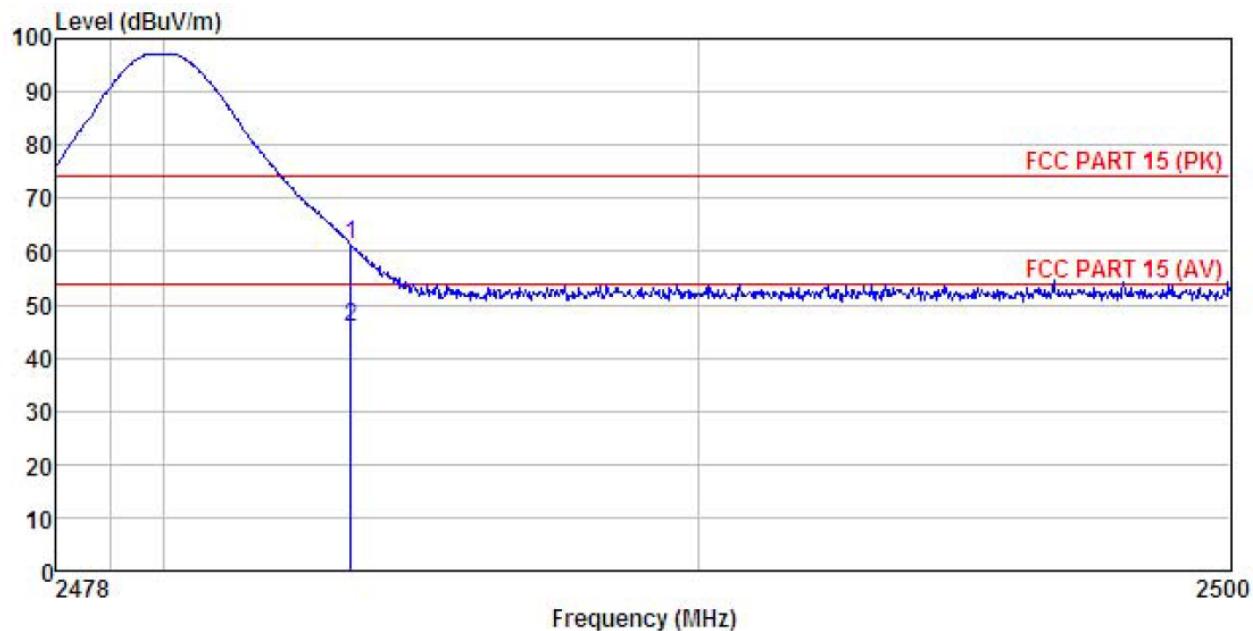
Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL
EUT : SB340 USB ADAPTER
Model : SB340
Test mode : DH1-H Mode
Power Rating : AC120V / 60Hz
Environment : Temp:25.5°C Humi:55%
Test Engineer: Carey
REMARK :

	Read	Antenna	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	23.57	23.70	4.81	0.00	52.08	74.00 -21.92 Peak
2	2483.500	13.48	23.70	4.81	0.00	41.99	54.00 -12.01 Average

Vertical:



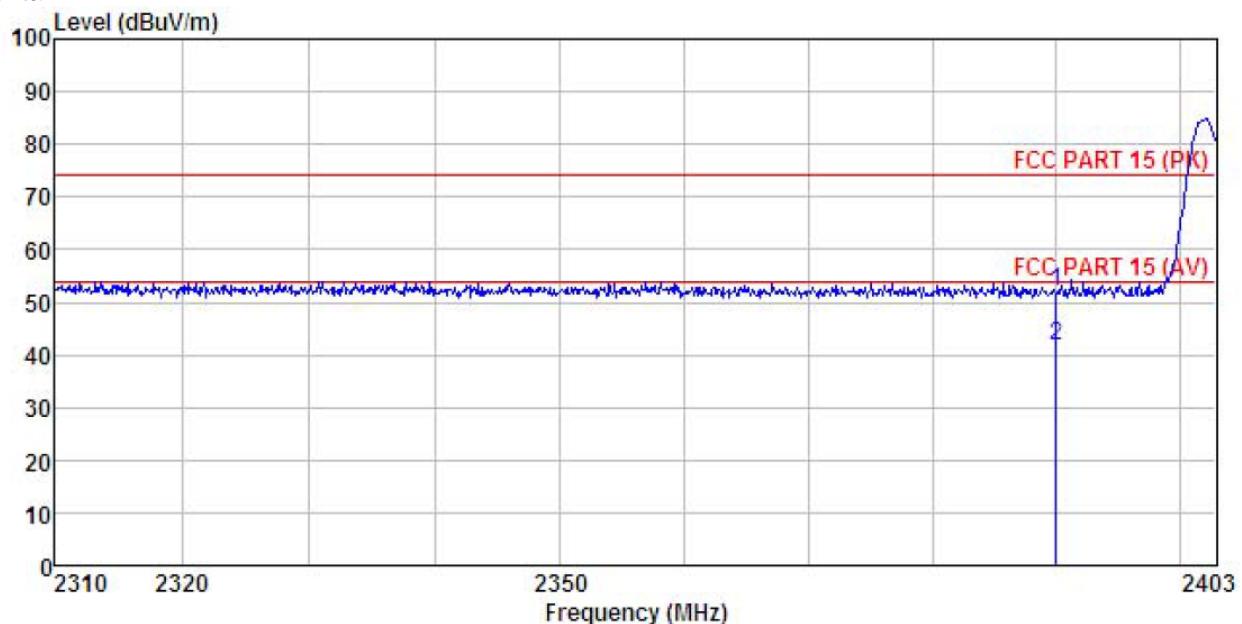
Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL
EUT : SB340 USB ADAPTER
Model : SB340
Test mode : DH1-H Mode
Power Rating : AC120V / 60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Carey
REMARK :

	ReadAntenna	Cable	Preamp	Limit	Over			
	Freq	Level	Factor	Loss	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2483.500	32.79	23.70	4.81	0.00	61.30	74.00	-12.70 Peak
2	2483.500	17.30	23.70	4.81	0.00	45.81	54.00	-8.19 Average

$\pi/4$ -DQPSK mode

Test channel: Lowest

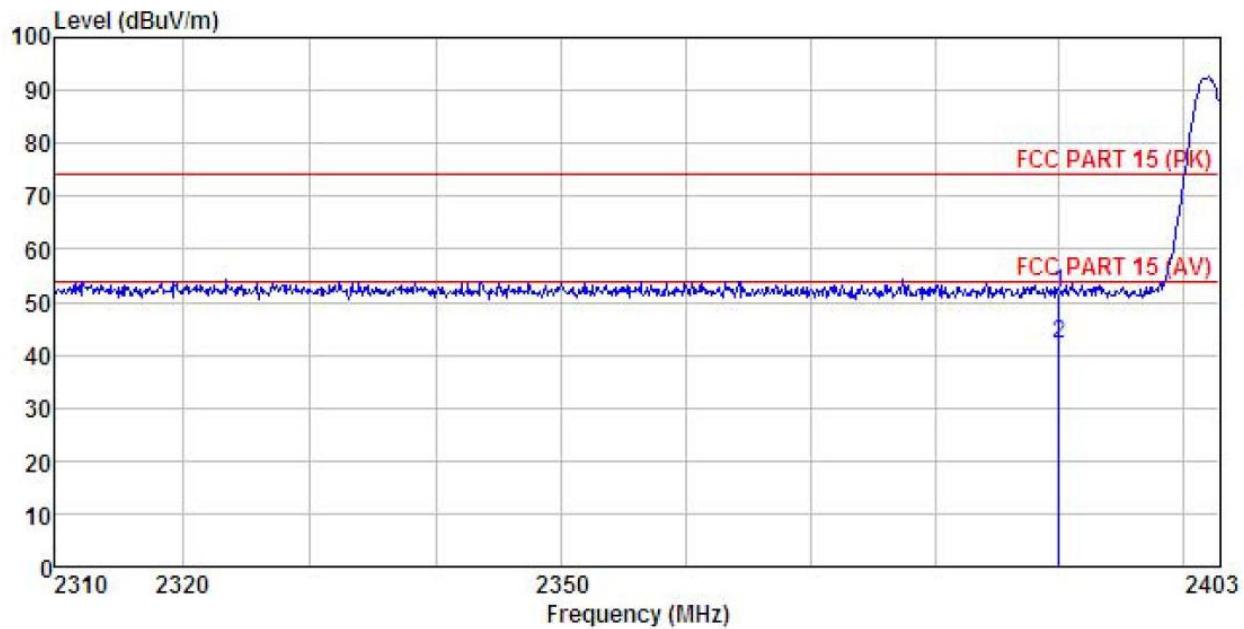
Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL
EUT : SB340 USB ADAPTER
Model : SB340
Test mode : 2DH1-L Mode
Power Rating : AC120V / 60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Carey
REMARK :

Freq	Read	Antenna	Cable	Preamp	Limit Line	Over Line	Remark
	Level	Factor	Loss	Factor			
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2390.000	23.68	23.68	4.69	0.00	52.05	74.00 -21.95 Peak
2	2390.000	13.33	23.68	4.69	0.00	41.70	54.00 -12.30 Average

Vertical:

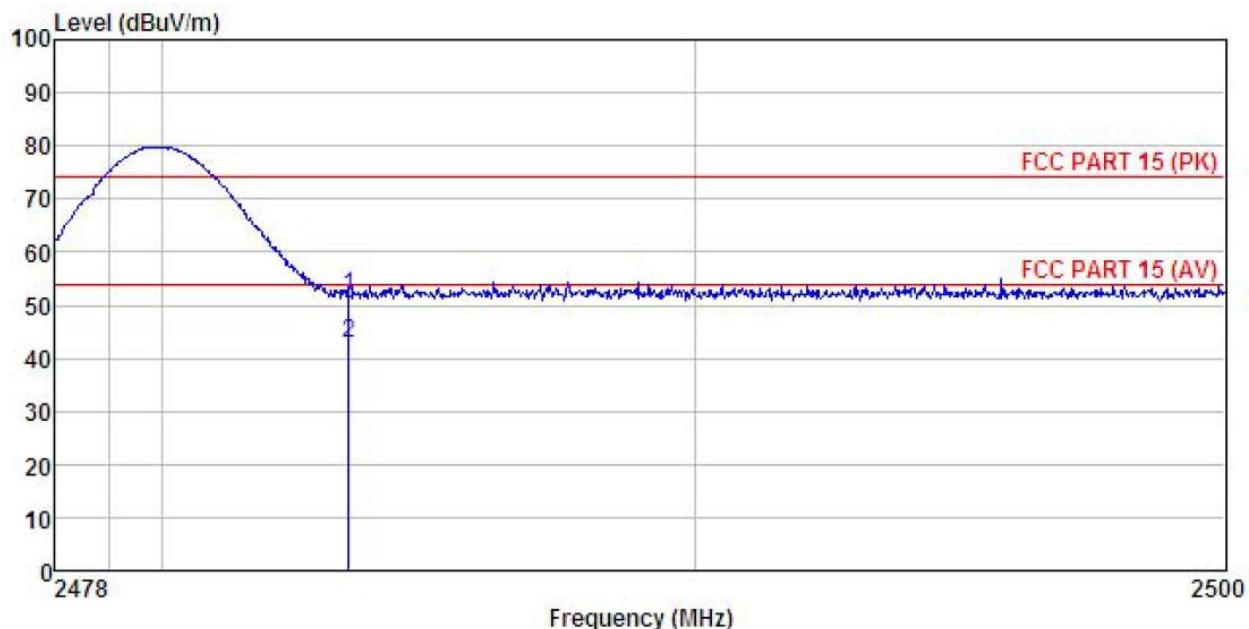


Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL
EUT : SB340 USB ADAPTER
Model : SB340
Test mode : 2DH1-L Mode
Power Rating : AC120V / 60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Carey
REMARK :

	ReadAntenna	Cable	Preamp	Limit	Over	
Freq	Level	Factor	Loss	Level	Line	Limit
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m
1	2390.000	23.25	23.68	4.69	0.00	51.62
2	2390.000	13.63	23.68	4.69	0.00	42.00
					74.00	-22.38 Peak
					54.00	-12.00 Average

Test channel: Highest

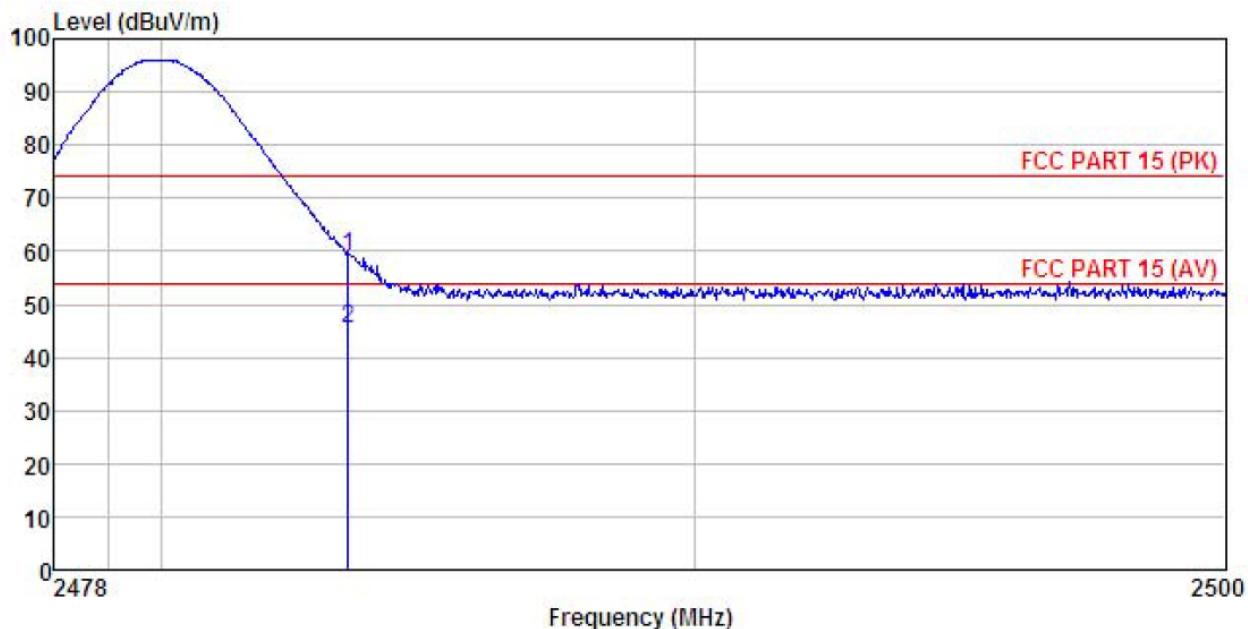
Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL
EUT : SB340 USB ADAPTER
Model : SB340
Test mode : 2DH1-H Mode
Power Rating : AC120V / 60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Carey
REMARK :

	ReadAntenna	Cable	Preamp	Limit	Over		
Freq	Level	Factor	Loss	Level	Line	Limit	
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2483.500	23.04	23.70	4.81	0.00	51.55	74.00 -22.45 Peak
2	2483.500	14.38	23.70	4.81	0.00	42.89	54.00 -11.11 Average

Vertical:

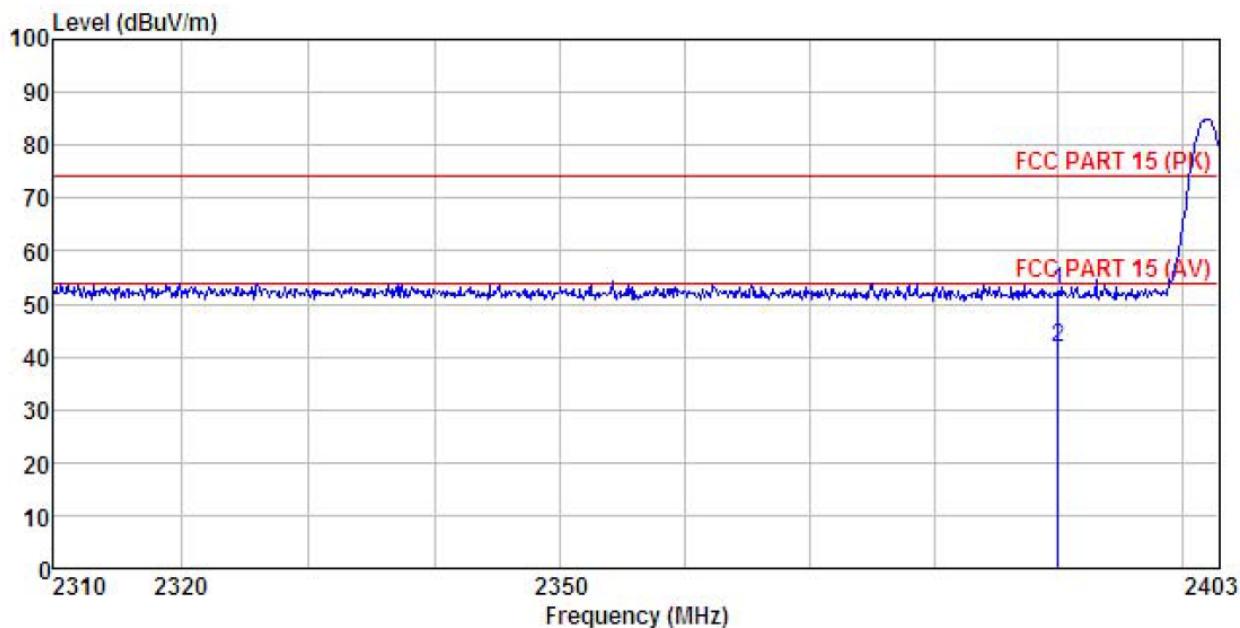


Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL
EUT : SB340 USB ADAPTER
Model : SB340
Test mode : 2DH1-H Mode
Power Rating : AC120V / 60Hz
Environment : Temp:25.5°C Humi:55%
Test Engineer: Carey
REMARK :

	Read	Antenna	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	30.70	23.70	4.81	0.00	59.21	74.00 -14.79 Peak
2	2483.500	16.96	23.70	4.81	0.00	45.47	54.00 -8.53 Average

8DPSK mode**Test channel: Lowest**

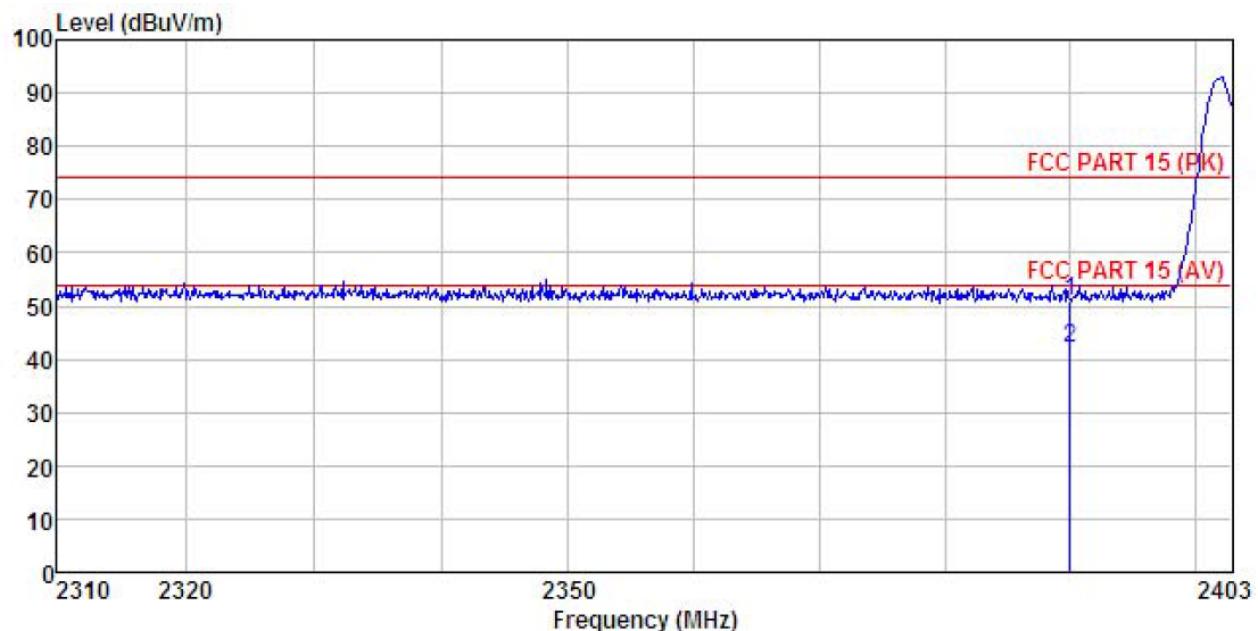
Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL
EUT : SB340 USB ADAPTER
Model : SB340
Test mode : 3DH1-L Mode
Power Rating : AC120V / 60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Carey
REMARK :

	ReadAntenna	Cable	Preamp	Limit	Over	
Freq	Level Factor	Loss Factor	Level	Line	Line	Remark
	MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m
1	2390.000	24.10	23.68	4.69	0.00	52.47 74.00 -21.53 Peak
2	2390.000	13.27	23.68	4.69	0.00	41.64 54.00 -12.36 Average

Vertical:

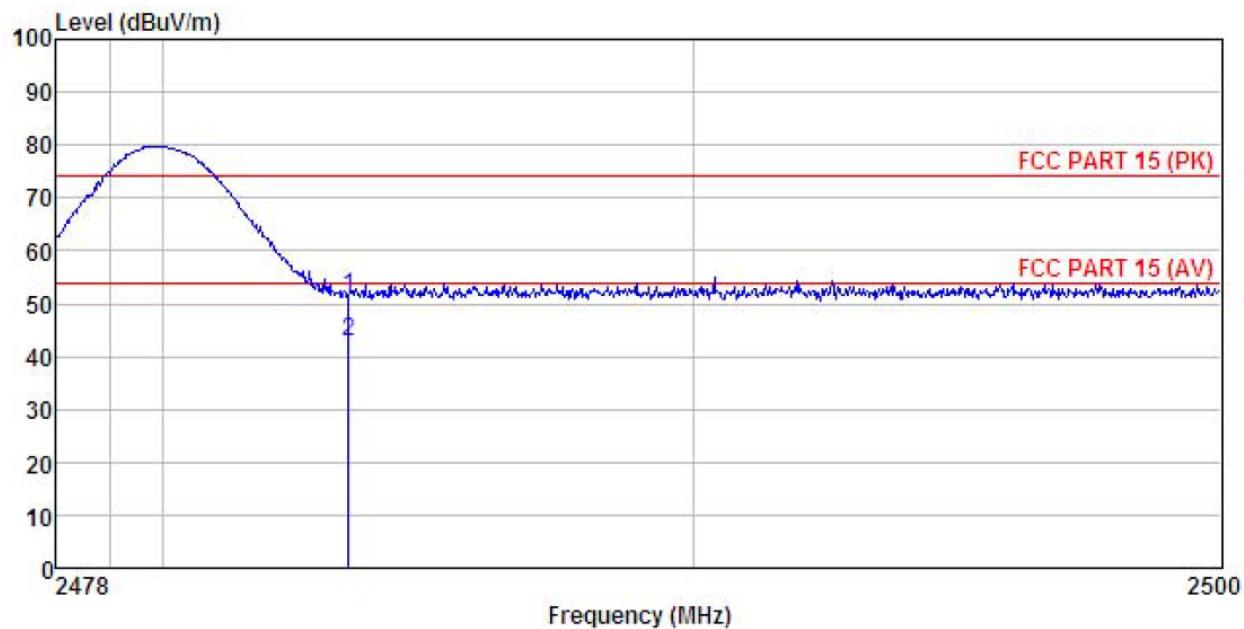


Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL
EUT : SB340 USB ADAPTER
Model : SB340
Test mode : 3DH1-L Mode
Power Rating : AC120V / 60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Carey
REMARK :

	Read	Antenna	Cable	Preamp	Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2390.000	22.59	23.68	4.69	0.00	50.96	74.00	-23.04 Peak
2	2390.000	13.56	23.68	4.69	0.00	41.93	54.00	-12.07 Average

Test channel: Highest

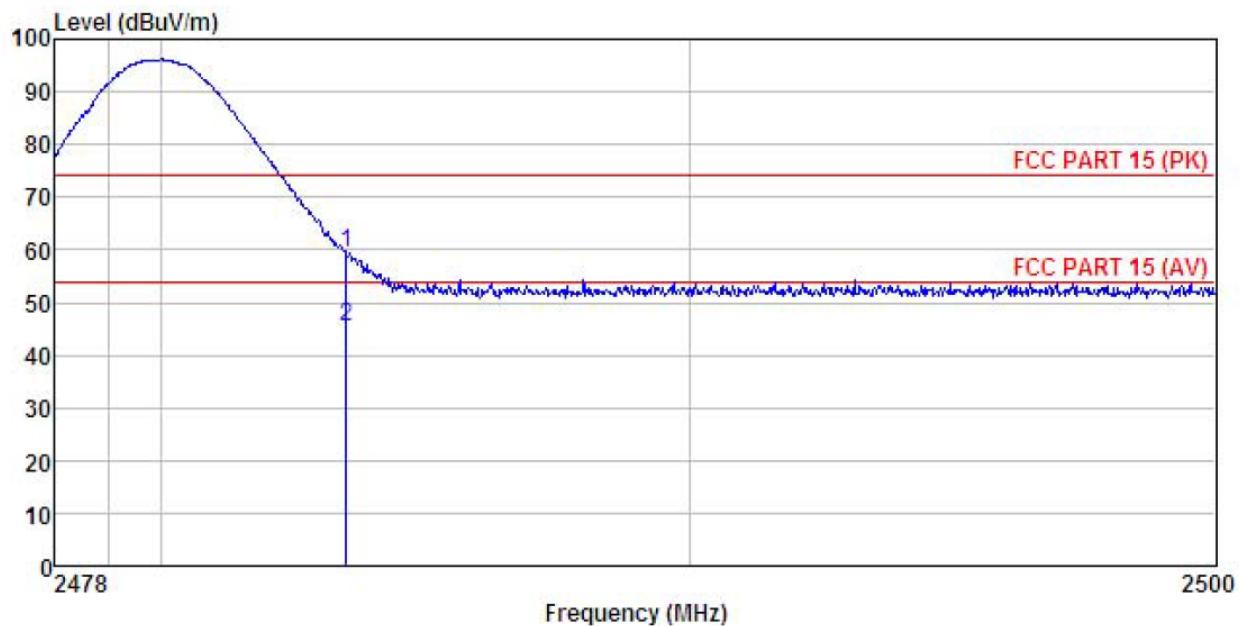
Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL
EUT : SB340 USB ADAPTER
Model : SB340
Test mode : 3DH1-H Mode
Power Rating : AC120V / 60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Carey
REMARK :

Freq	Read		Antenna		Cable	Preamp	Limit	Over	Remark
	Level	Factor	Loss	Factor	Level	Line			
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2483.500	22.94	23.70	4.81	0.00	51.45	74.00	-22.55	Peak
2	2483.500	14.44	23.70	4.81	0.00	42.95	54.00	-11.05	Average

Vertical:

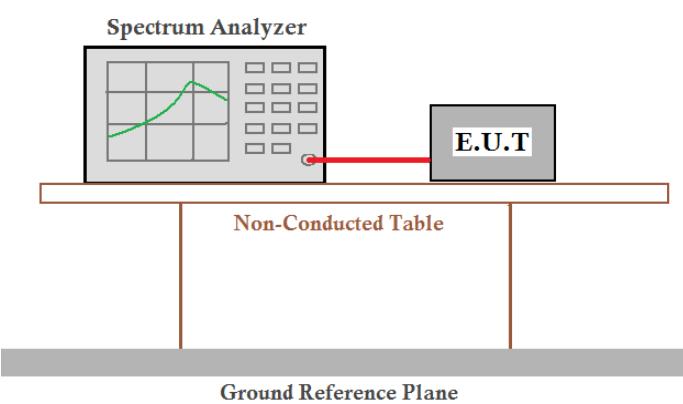


Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL
EUT : SB340 USB ADAPTER
Model : SB340
Test mode : 3DH1-H Mode
Power Rating : AC120V / 60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Carey
REMARK :

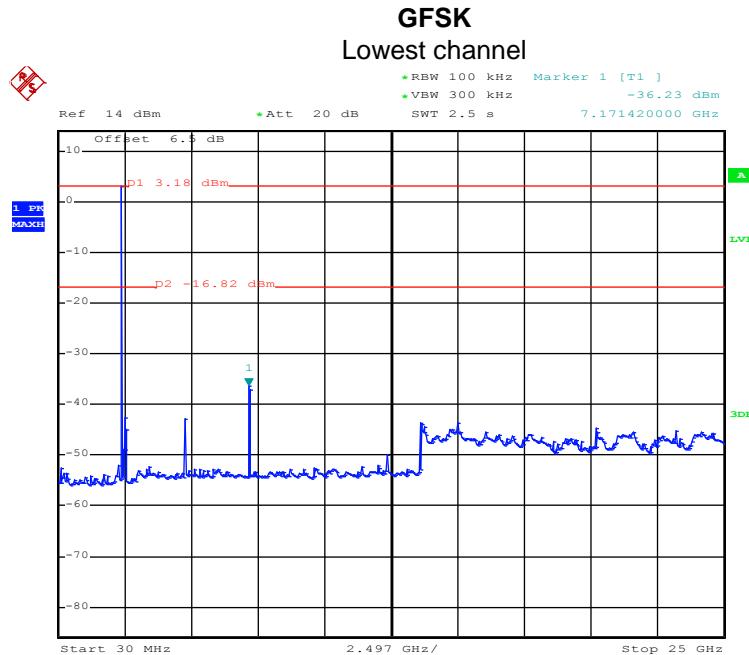
	ReadAntenna	Cable	Preamp	Limit	Over	
Freq	Level	Factor	Loss	Level	Line	Limit
MHz	dBuV	dB/m	dB	dB	dBuV/m	dB
1	2483.500	30.93	23.70	4.81	0.00	59.44
2	2483.500	16.92	23.70	4.81	0.00	45.43
					74.00	-14.56
					54.00	-8.57
						Peak Average

6.10 Spurious Emission

6.10.1 Conducted Emission Method

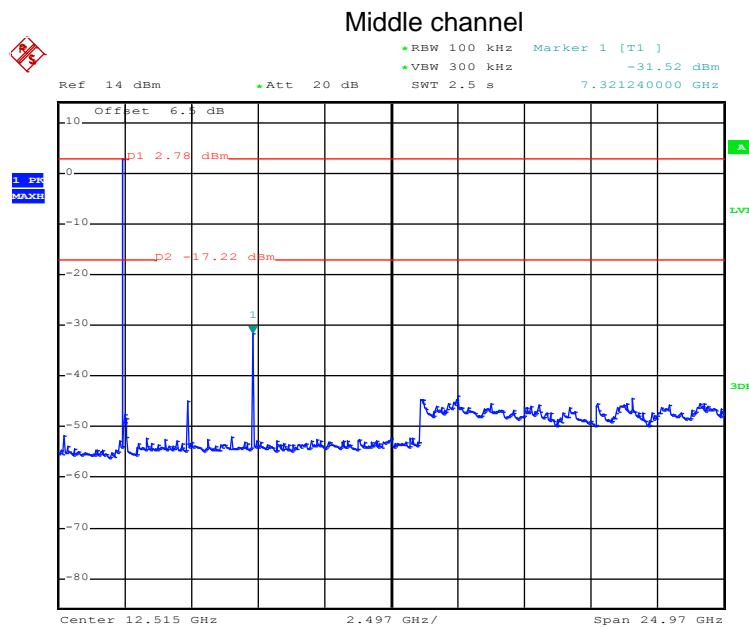
Test Requirement:	FCC Part 15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2013 and DA00-705
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 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:	
Test Instruments:	Refer to section 5.7 for details
Test mode:	Non-hopping mode
Test results:	Pass

Test plot as follows:



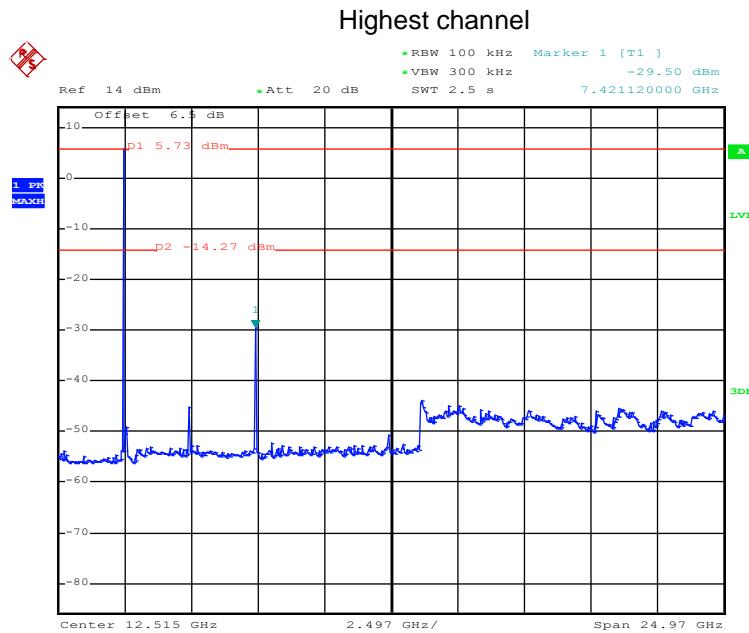
Date: 4.JAN.2017 11:52:52

30MHz~25GHz



Date: 4.JAN.2017 11:54:41

30MHz~25GHz

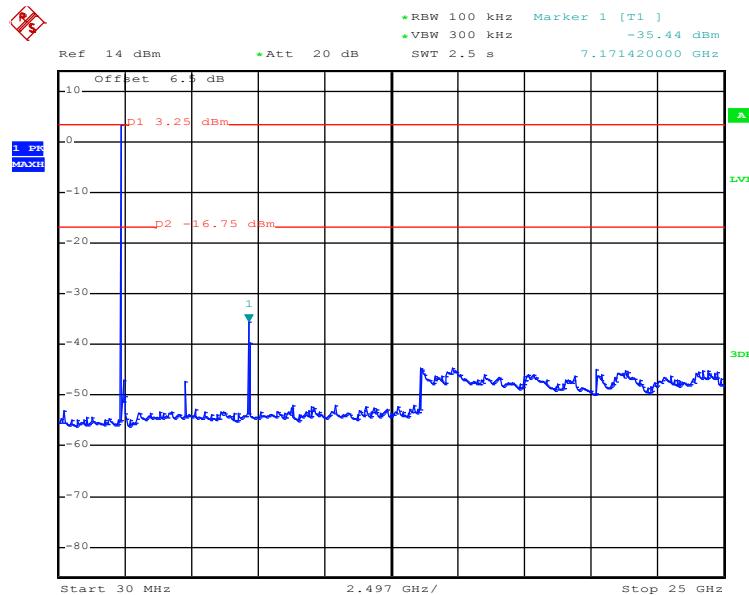


Date: 4.JAN.2017 11:55:55

30MHz~25GHz

$\pi/4$ -DQPSK

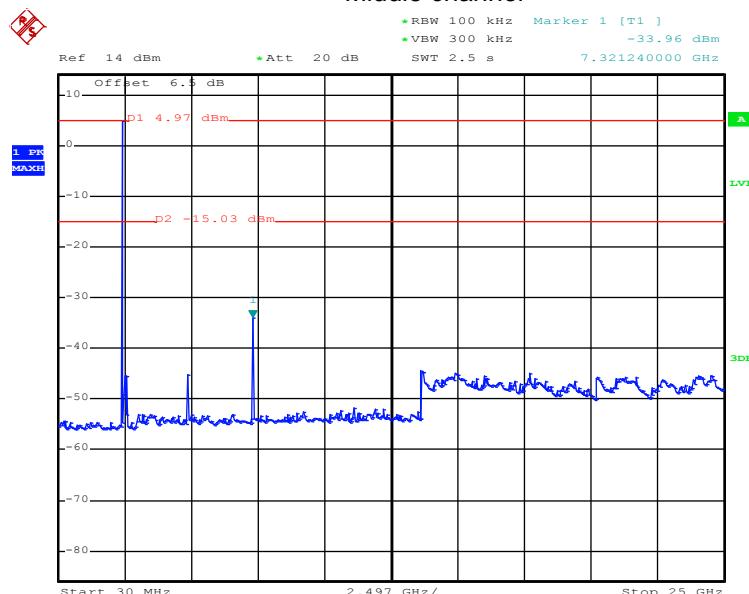
Lowest channel



Date: 4.JAN.2017 11:38:44

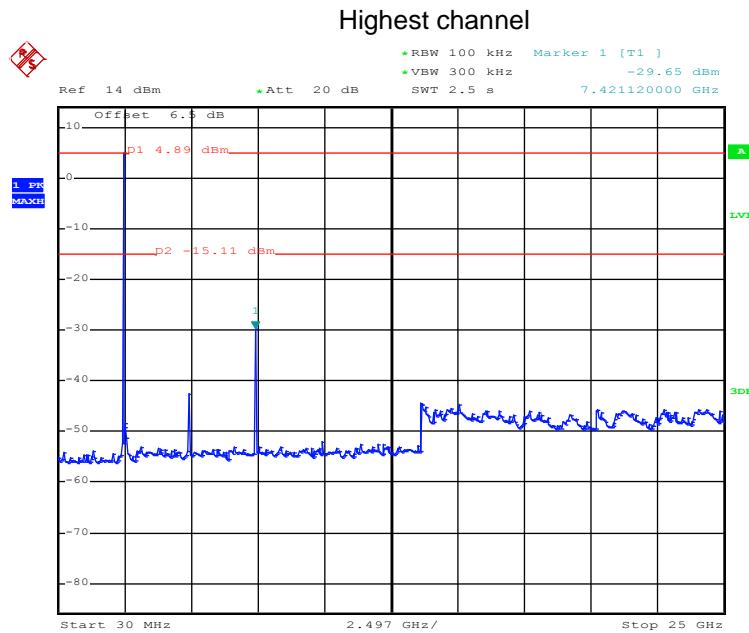
30MHz~25GHz

Middle channel



Date: 4.JAN.2017 11:40:14

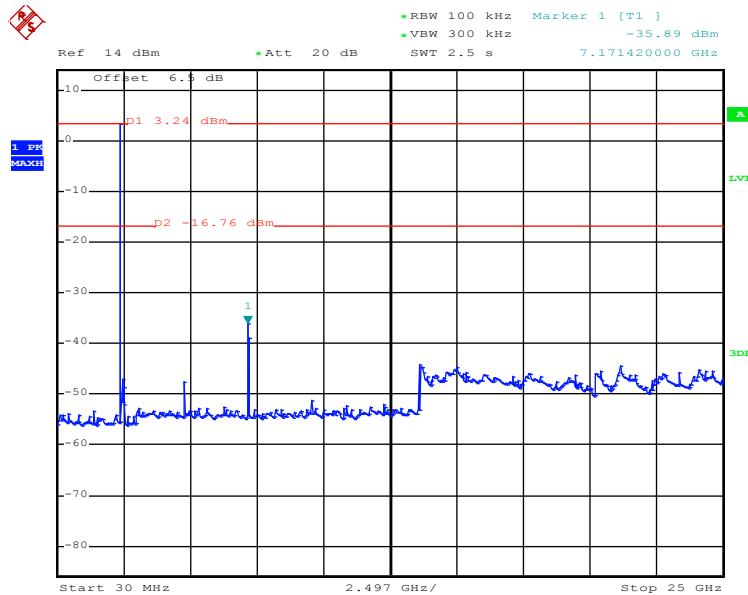
30MHz~25GHz



Date: 4.JAN.2017 11:41:30

30MHz~25GHz

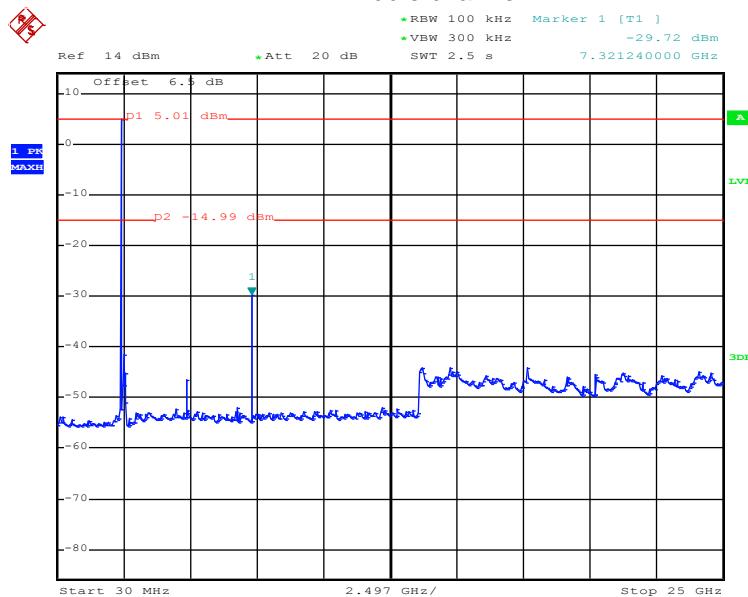
8DPSK Lowest channel



Date: 4.JAN.2017 11:49:55

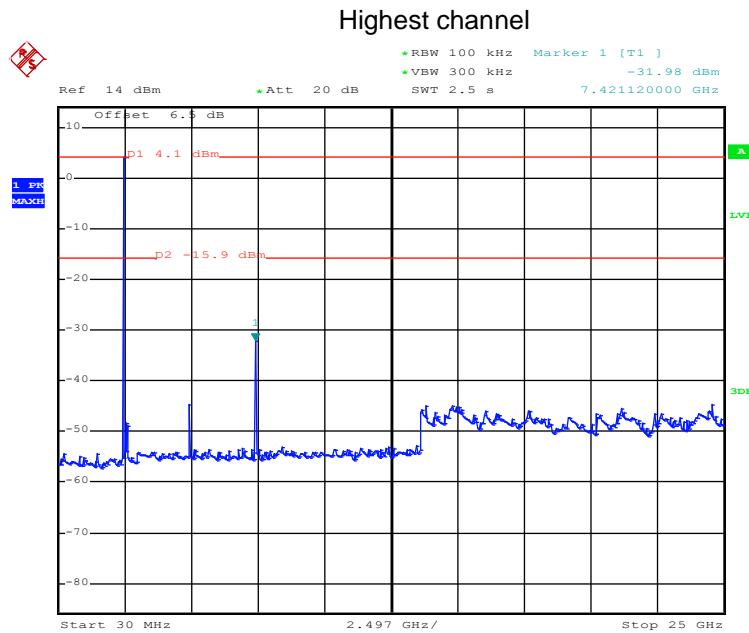
30MHz~25GHz

Middle channel



Date: 4.JAN.2017 11:48:16

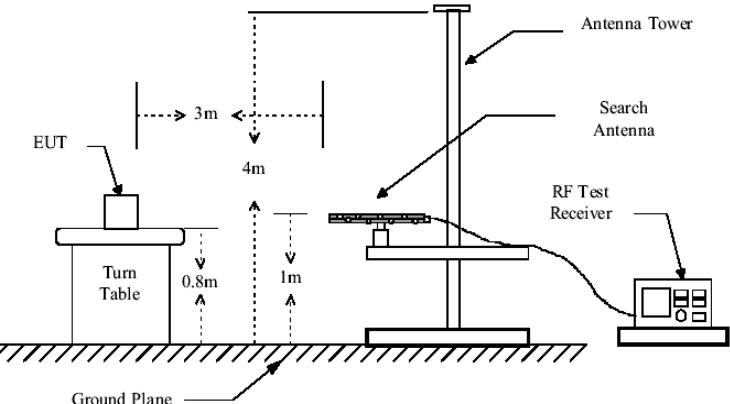
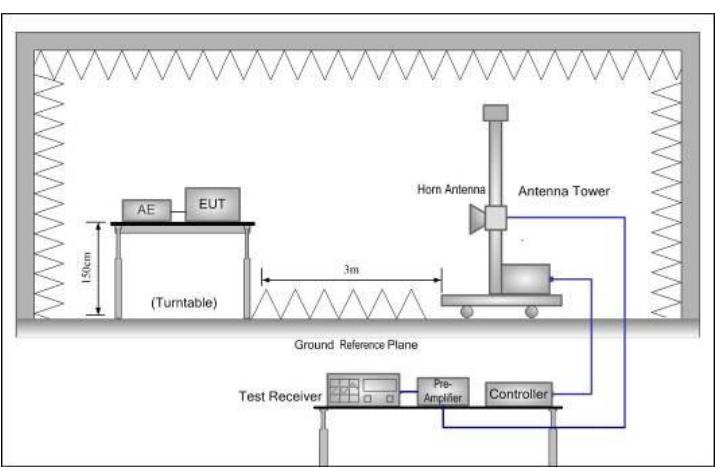
30MHz~25GHz



Date: 4.JAN.2017 11:45:40

30MHz~25GHz

6.10.2 Radiated Emission Method

Test Requirement:	FCC Part 15 C Section 15.209				
Test Method:	ANSI C63.10: 2013				
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
		RMS	1MHz	3MHz	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 				

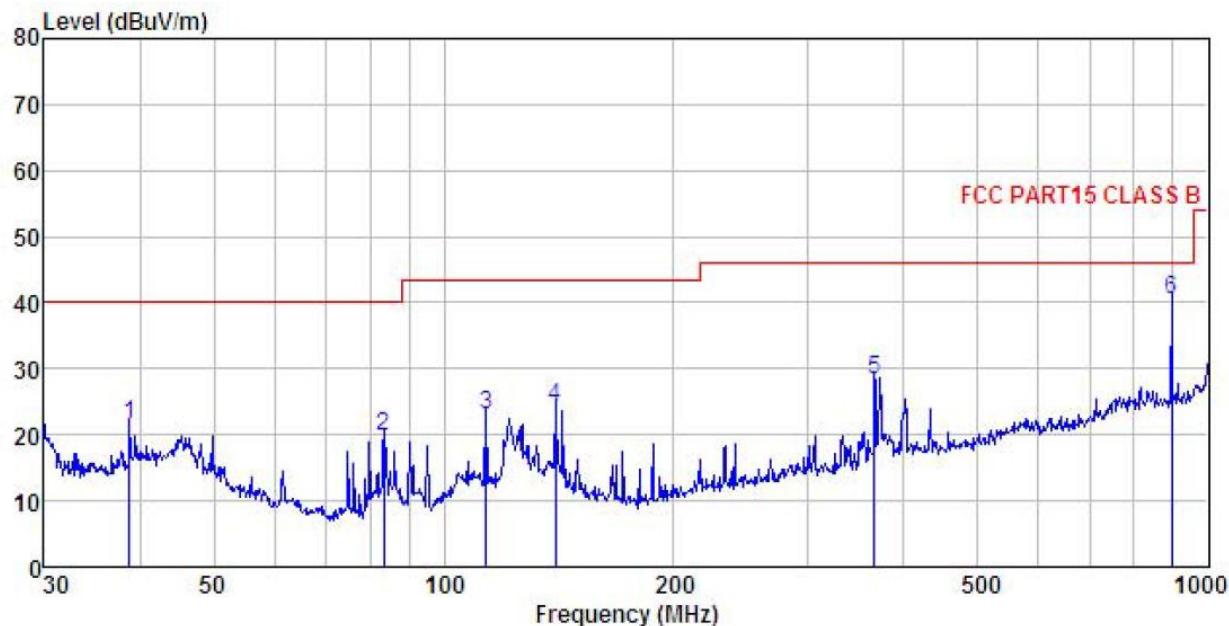
Test Procedure:	<ol style="list-style-type: none"> 1. The EUT was placed on the top of a rotating table 0.8m(below 1GHz) /1.5m(above 1GHz) above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from 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**

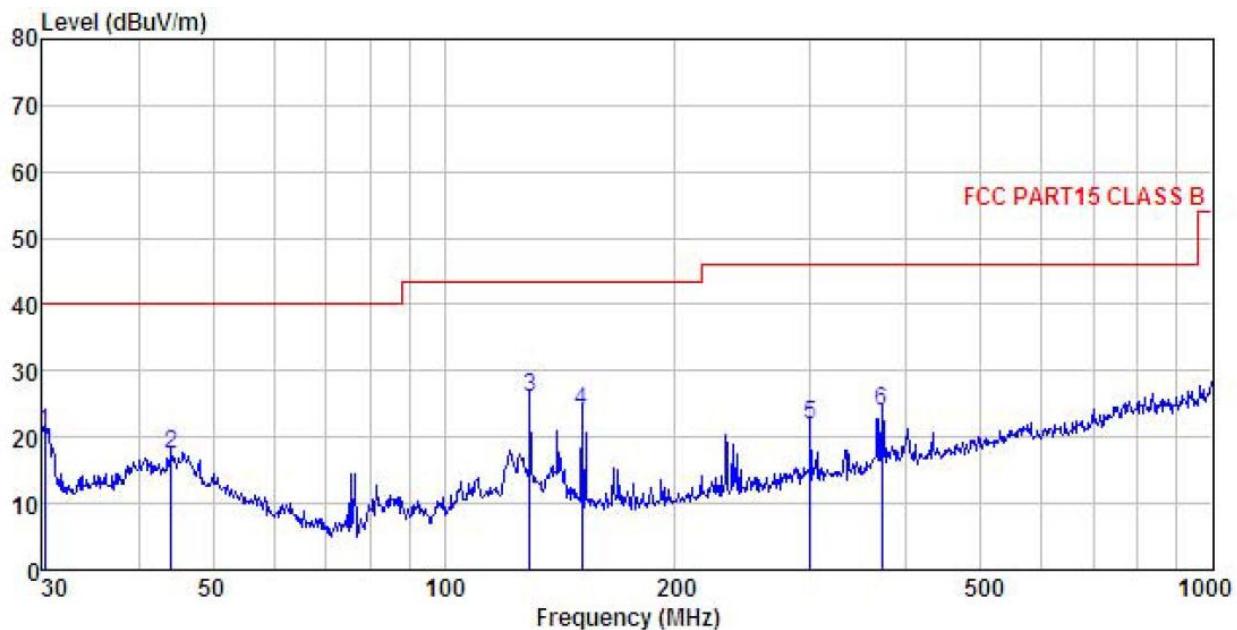
Vertical:



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163(30M3G) VERTICAL
EUT : SB340 USB ADAPTER
Model : SB340
Test mode : BT Mode
Power Rating : AC120V/ 60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: Carey
REMARK :

Freq	Read	Antenna	Cable	Preamp	Limit	Over	Remark
	Level	Factor	Loss	Factor			
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	38.752	33.81	16.46	1.18	29.91	21.54	40.00 -18.46 QP
2	83.522	40.33	7.19	1.79	29.61	19.70	40.00 -20.30 QP
3	113.714	39.45	10.85	2.10	29.43	22.97	43.50 -20.53 QP
4	139.851	39.49	11.74	2.39	29.27	24.35	43.50 -19.15 QP
5	365.539	39.19	14.72	3.09	28.63	28.37	46.00 -17.63 QP
6	896.997	42.96	21.55	3.74	27.89	40.36	46.00 -5.64 QP

Horizontal:



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163 (30M3G) HORIZONTAL
EUT : SB340 USB ADAPTER
Model : SB340
Test mode : BT Mode
Power Rating : AC120V/ 60Hz
Environment : Temp:25.5°C Humi:55%
Test Engineer: Carey
REMARK :

Freq	ReadAntenna		Cable Preamp		Limit Level	Over Line	Over Limit	Remark
	Level	Factor	Loss	Factor				
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	30.211	38.03	12.03	0.72	29.98	20.80	40.00	-19.20 QP
2	44.120	28.33	17.56	1.28	29.87	17.30	40.00	-22.70 QP
3	129.468	40.80	12.30	2.28	29.33	26.05	43.50	-17.45 QP
4	151.067	40.14	10.59	2.53	29.21	24.05	43.50	-19.45 QP
5	299.316	34.61	12.70	2.94	28.45	21.80	46.00	-24.20 QP
6	370.702	34.69	14.91	3.09	28.65	24.04	46.00	-21.96 QP

Above 1GHz:

Test channel:			Lowest		Level:		Peak	
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
4804.00	55.16	35.99	6.80	41.81	56.14	74.00	-17.86	Vertical
4804.00	52.93	35.99	6.80	41.81	53.91	74.00	-20.09	Horizontal
Test channel:			Lowest		Level:		Average	
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
4804.00	49.03	35.99	6.80	41.81	50.01	54.00	-3.99	Vertical
4804.00	45.45	35.99	6.80	41.81	46.43	54.00	-7.57	Horizontal

Test channel:			Middle		Level:		Peak	
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	57.92	36.38	6.86	41.84	59.32	74.00	-14.68	Vertical
4882.00	53.27	36.38	6.86	41.84	54.67	74.00	-19.33	Horizontal
Test channel:			Middle		Level:		Average	
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	50.66	36.38	6.86	41.84	52.06	54.00	-1.94	Vertical
4882.00	47.24	36.38	6.86	41.84	48.64	54.00	-5.36	Horizontal

Test channel:			Highest		Level:		Peak	
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	53.39	36.71	6.91	41.87	55.14	74.00	-18.86	Vertical
4960.00	50.66	36.71	6.91	41.87	52.41	74.00	-21.59	Horizontal
Test channel:			Highest		Level:		Average	
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	47.26	36.71	6.91	41.87	49.01	54.00	-4.99	Vertical
4960.00	45.12	36.71	6.91	41.87	46.87	54.00	-7.13	Horizontal

Remark:

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