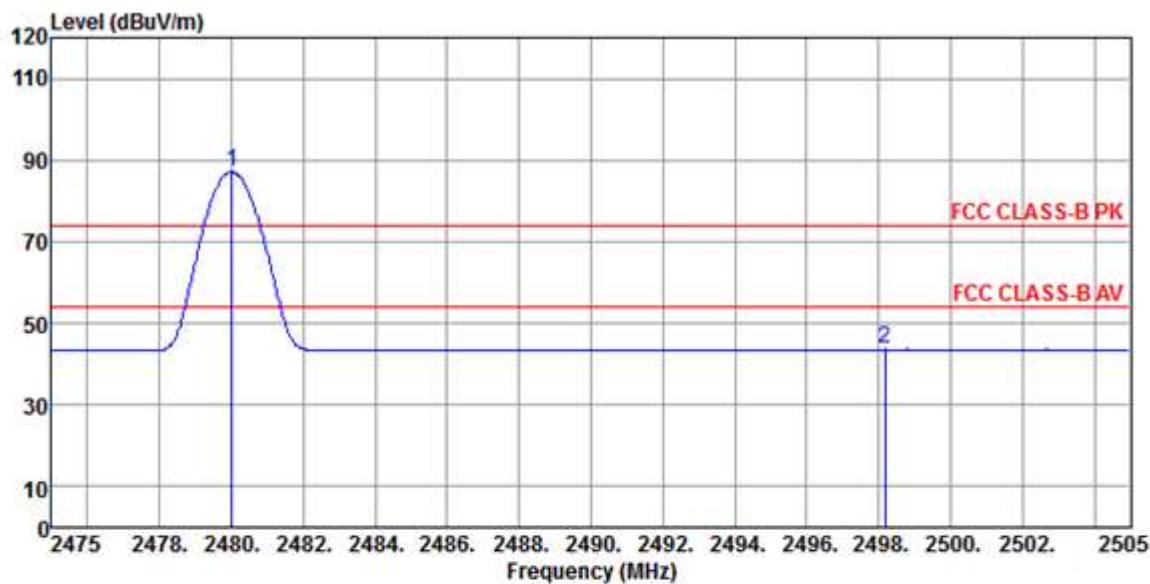


Detector mode: Average

Polarity: Horizontal



Site : chamber

Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60Hz

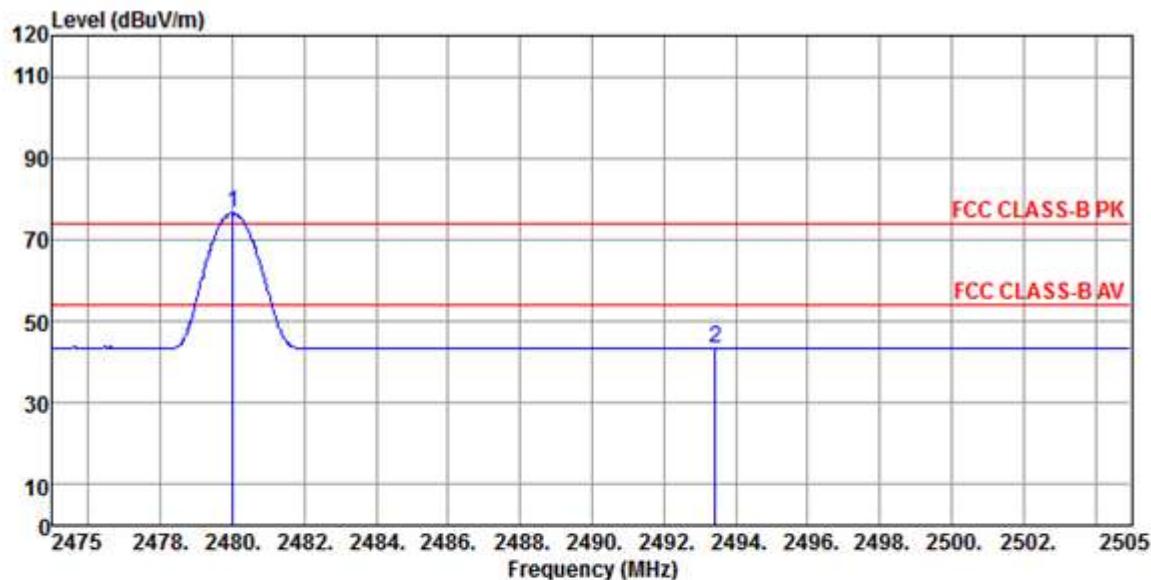
Mode : BT GFSK CH78

Memo :

	ReadAntenna	Cable	Preamp	Limit	Over	
Freq	Level	Factor	Loss	Level	Line	Limit
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m
1 pp	2480.01	90.45	27.52	7.41	38.31	87.07
					54.00	33.07
2	2498.19	47.03	27.55	7.43	38.30	43.71
					54.00	-10.29
						Average

Detector mode: Average

Polarity: Vertical



Site : chamber

Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60Hz

Mode : BT GFSK CH78

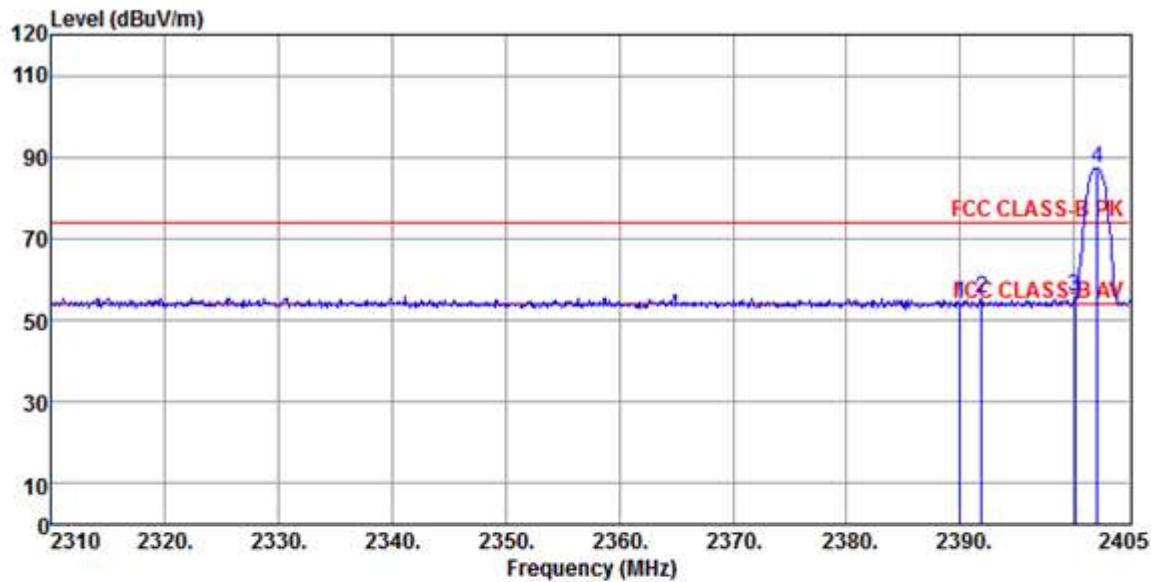
Memo :

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 pp	2480.01	79.93	27.52	7.41	38.31	76.55	54.00	22.55 Average
2	2493.42	46.70	27.55	7.43	38.30	43.38	54.00	-10.62 Average

## BT π/4-DQPSK (Low Channel)

Detector mode: Peak

Polarity: Horizontal



Site : chamber

Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60Hz

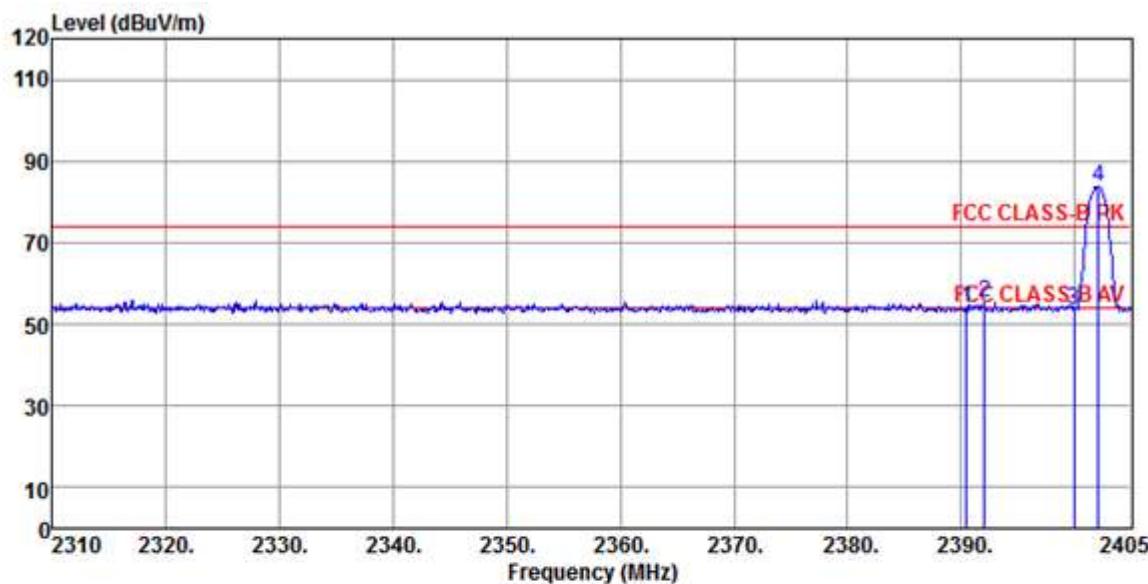
Mode : BT π/4-DQPSK CH0

Memo :

Freq	ReadAntenna		Cable		Preamp		Limit	Over	Over
	Level	Factor	Loss	Factor	Level	Line			
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2389.99	57.69	27.58	7.13	38.34	54.06	74.00	-19.94	Peak
2	2391.89	58.78	27.58	7.13	38.34	55.15	74.00	-18.85	Peak
3	2400.16	59.34	27.58	7.13	38.34	55.71	74.00	-18.29	Peak
4 pp	2402.15	90.90	27.54	7.13	38.34	87.23	74.00	13.23	Peak

Detector mode: Peak

Polarity: Vertical



Site : chamber

Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60Hz

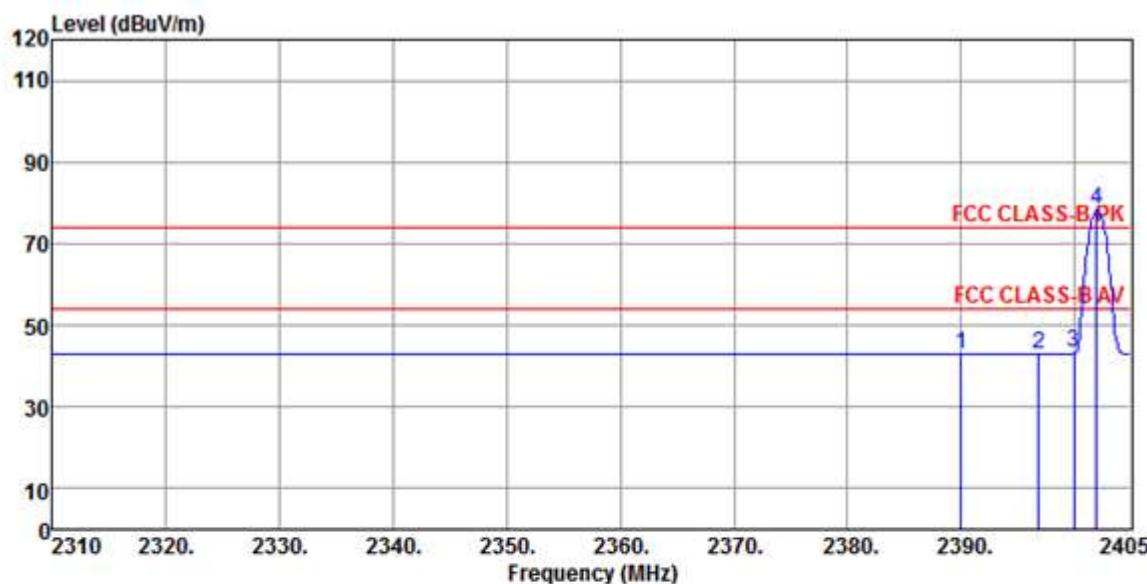
Mode : BT π/4-DQPSK CH0

Memo :

	ReadAntenna	Cable	Preamp	Limit	Over			
Freq	Level	Factor	Loss	Level	Line	Limit		
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2390.47	57.52	27.58	7.13	38.34	53.89	74.00	-20.11 Peak
2	2392.08	58.84	27.58	7.13	38.34	55.21	74.00	-18.79 Peak
3	2399.97	57.27	27.58	7.13	38.34	53.64	74.00	-20.36 Peak
4 pp	2402.15	87.51	27.54	7.13	38.34	83.84	74.00	9.84 Peak

Detector mode: Average

Polarity: Horizontal



Site : chamber

Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60Hz

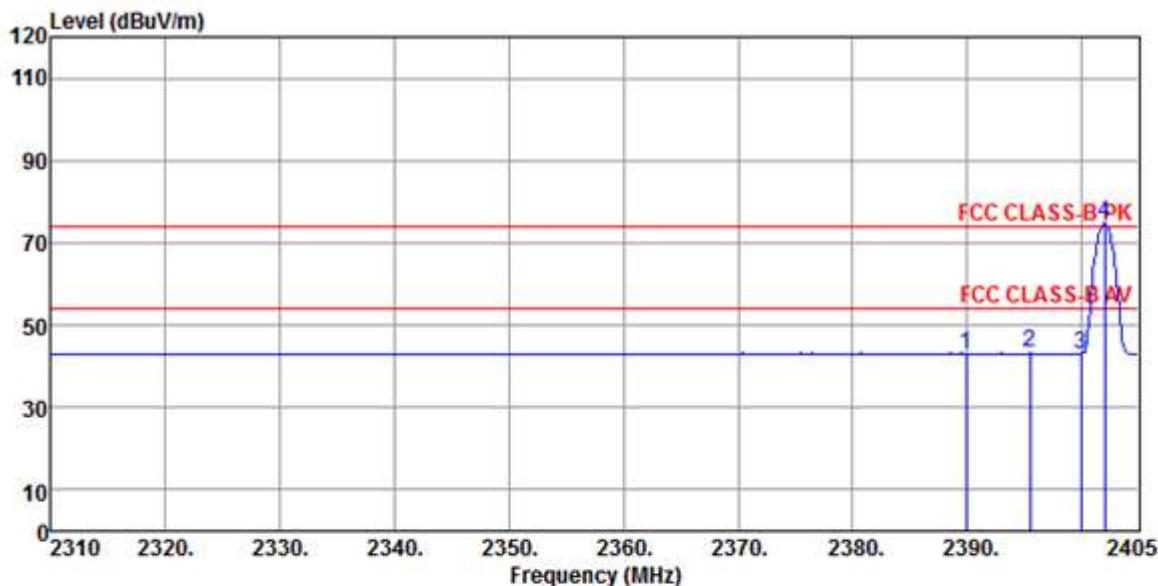
Mode : BT  $\pi/4$ -DQPSK CH0

Memo :

Freq	ReadAntenna		Cable Preamp		Limit	Over	Limit	Remark
	Level	Factor	Loss	Factor				
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2389.99	46.55	27.58	7.13	38.34	42.92	54.00	-11.08 Average
2	2396.83	46.66	27.58	7.13	38.34	43.03	54.00	-10.97 Average
3	2399.97	46.83	27.58	7.13	38.34	43.20	54.00	-10.80 Average
4 pp	2401.96	81.88	27.54	7.13	38.34	78.21	54.00	24.21 Average

Detector mode: Average

Polarity: Vertical



Site : chamber

Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60Hz

Mode : BT π/4-DQPSK CH0

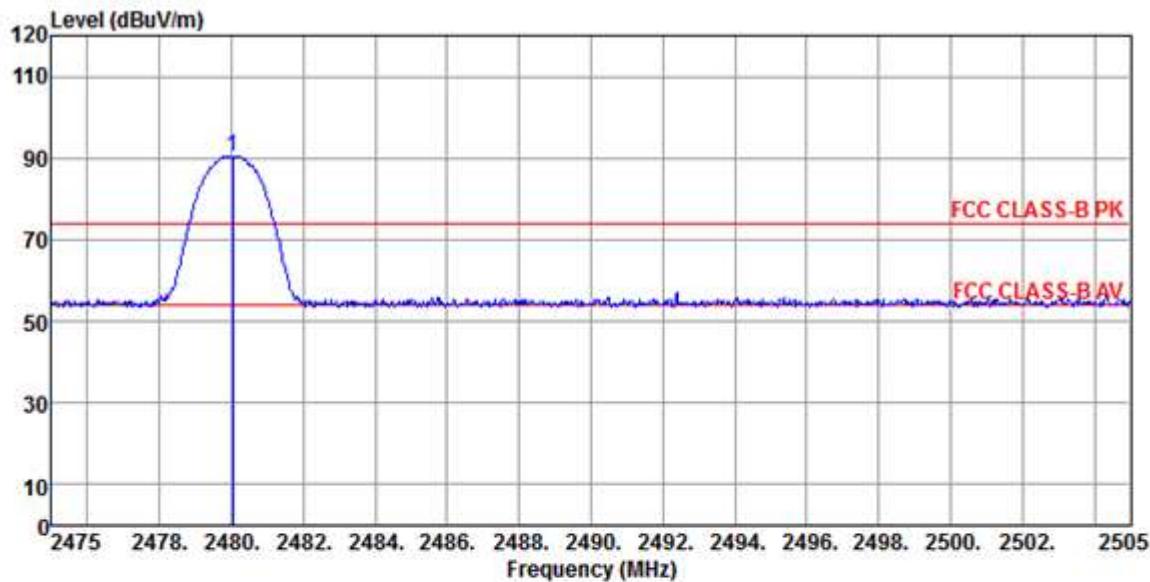
Memo :

Freq	ReadAntenna		Cable		Preamp	Limit	Over	Remark
	Level	Factor	Loss	Factor				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2389.90	46.53	27.58	7.13	38.34	42.90	54.00	-11.10 Average
2	2395.50	46.93	27.58	7.13	38.34	43.30	54.00	-10.70 Average
3	2399.97	46.71	27.58	7.13	38.34	43.08	54.00	-10.92 Average
4 pp	2402.06	78.30	27.54	7.13	38.34	74.63	54.00	20.63 Average

### BT $\pi/4$ -DQPSK (High Channel)

Detector mode: Peak

Polarity: Horizontal



Site : chamber

Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60Hz

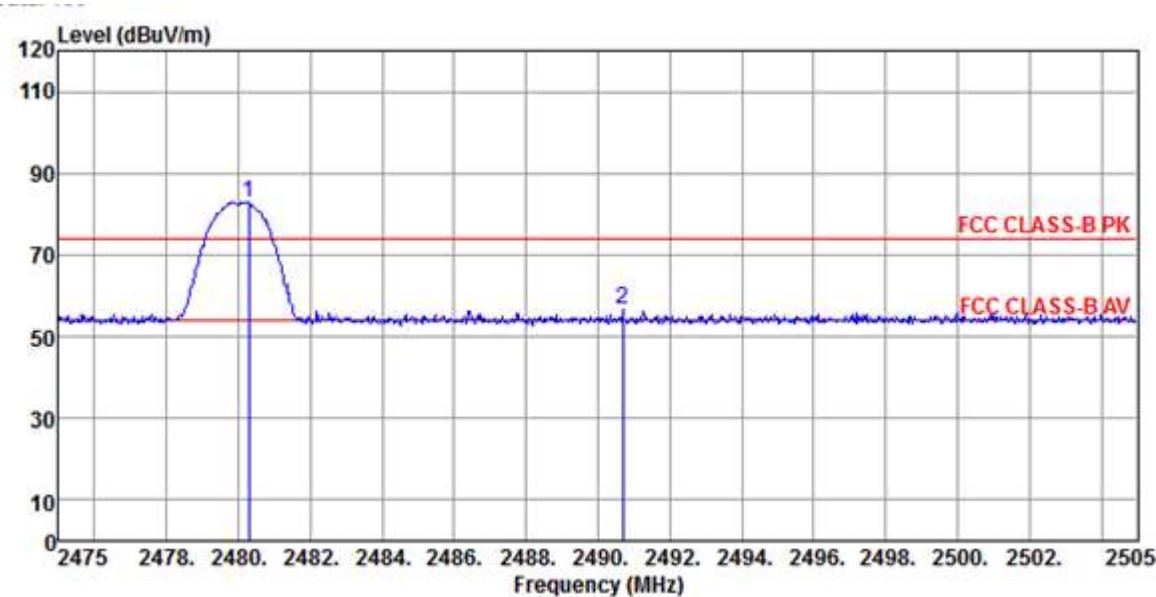
Mode : BT  $\pi/4$ -DQPSK CH78

Memo :

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Over Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2480.04	93.76	27.52	7.41	38.31	90.38	74.00	16.38	Peak

Detector mode: Peak

Polarity: Vertical



Site : chamber  
Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60Hz

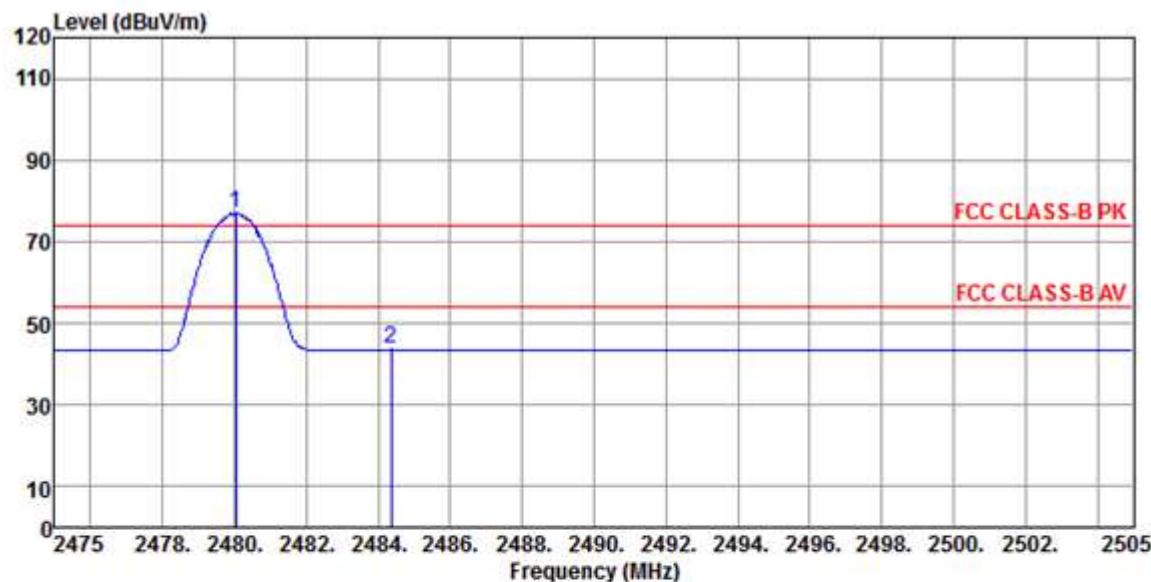
Mode : BT π/4-DQPSK CH78

Memo :

Freq	ReadAntenna		Cable Preamp		Limit	Over	Limit	Remark
	Level	Factor	Loss	Factor				
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 pp	2480.28	86.35	27.52	7.41	38.31	82.97	74.00	8.97 Peak
2	2490.69	59.97	27.55	7.43	38.30	56.65	74.00	-17.35 Peak

Detector mode: Average

Polarity: Horizontal



Site : chamber

Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60Hz

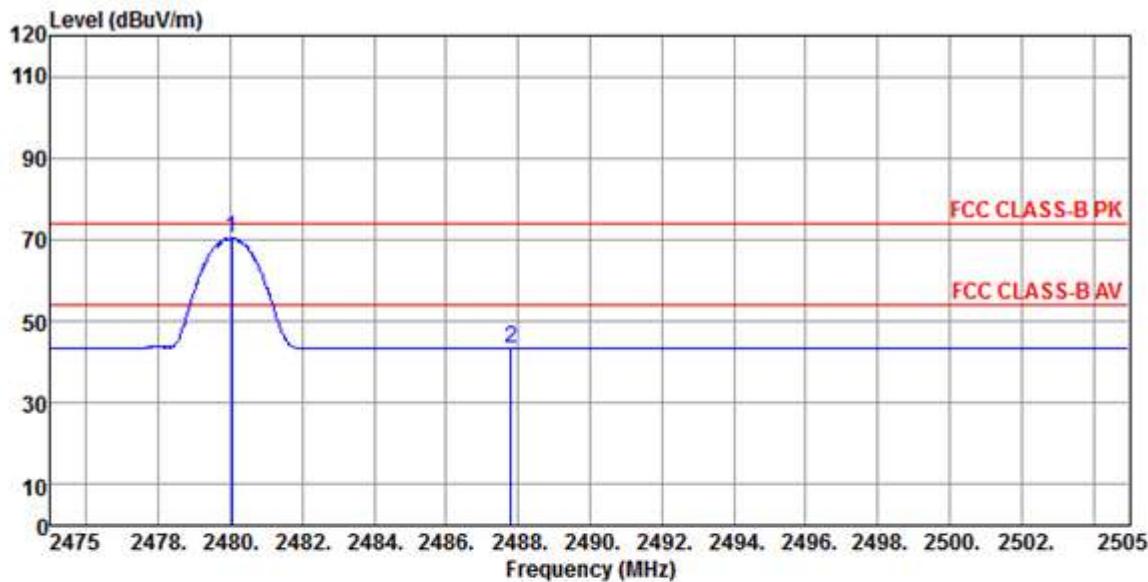
Mode : BT π/4-DQPSK CH78

Memo :

Freq	ReadAntenna		Cable Preamp		Limit	Over	Remark
	Level	Factor	Loss	Factor			
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1 pp	2480.04	80.29	27.52	7.41	38.31	76.91	54.00 22.91 Average
2	2484.36	47.02	27.52	7.41	38.31	43.64	54.00 -10.36 Average

Detector mode: Average

Polarity: Vertical



Site : chamber

Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60Hz

Mode : BT π/4-DQPSK CH78

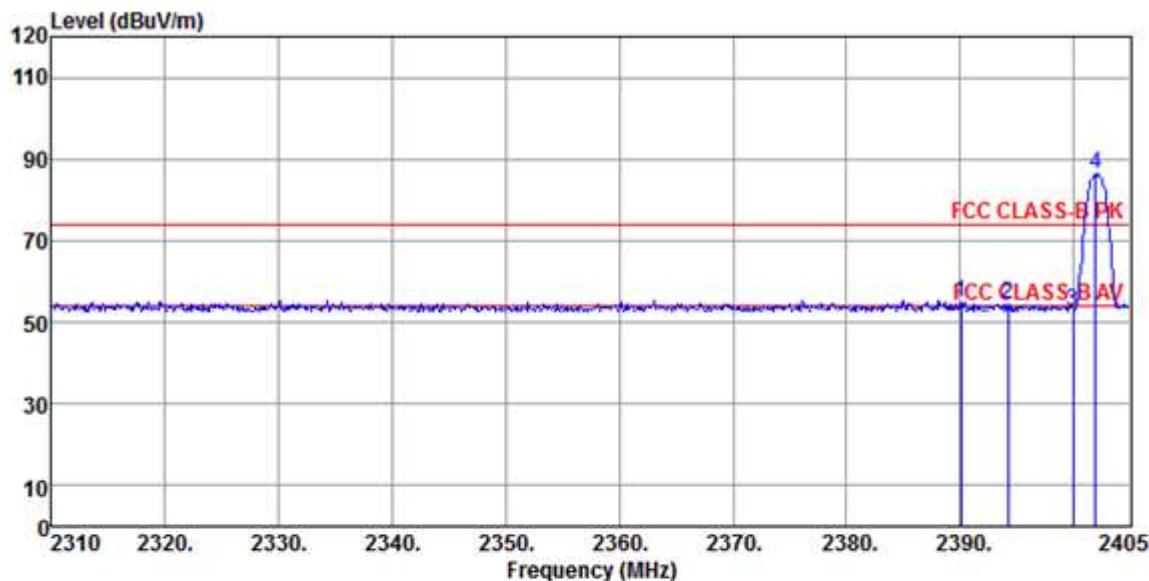
Memo :

Freq	ReadAntenna MHz	Level dBuV	Antenna Factor	Cable Loss Factor		Preamp Factor	Limit Level dBuV/m	Line Limit dBuV/m	Over Limit dB	Over Remark
				dB	dB					
1 pp	2480.04	73.83	27.52	7.41	38.31	70.45	54.00	54.00	16.45	Average
2	2487.81	46.69	27.52	7.43	38.30	43.34	54.00	54.00	-10.66	Average

## BT 8-DPSK (Low Channel)

Detector mode: Peak

Polarity: Horizontal



Site : chamber

Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60Hz

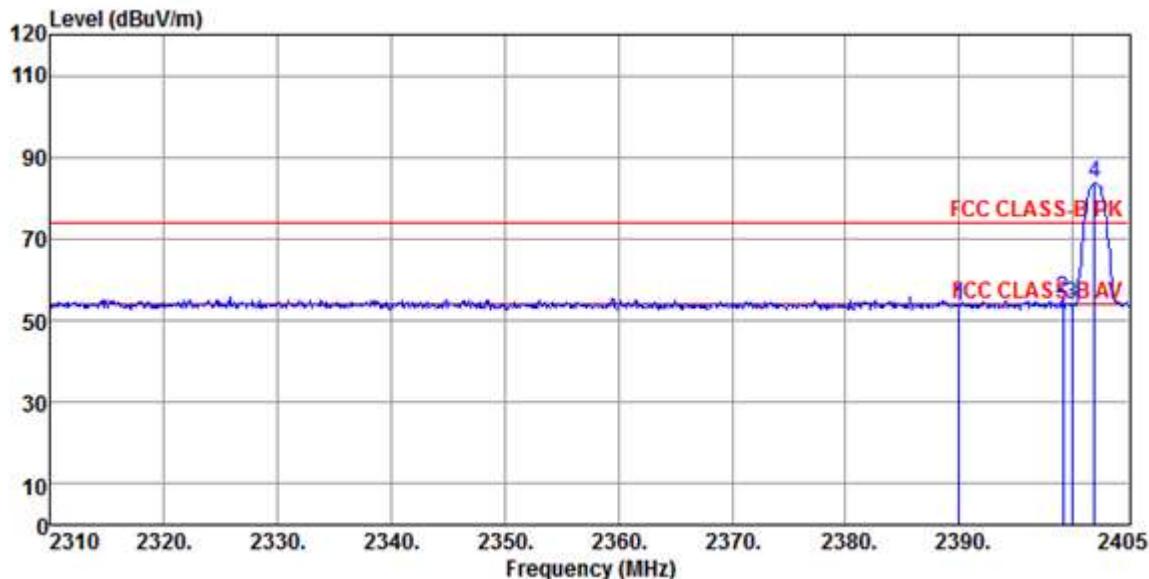
Mode : BT 8DPSK CH0

Memo :

Freq	ReadAntenna		Cable Preamp		Limit Level	Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB				
1	2390.09	58.32	27.58	7.13	38.34	54.69	74.00	-19.31 Peak
2	2394.27	57.93	27.58	7.13	38.34	54.30	74.00	-19.70 Peak
3	2399.97	56.38	27.58	7.13	38.34	52.75	74.00	-21.25 Peak
4 pp	2401.96	90.04	27.54	7.13	38.34	86.37	74.00	12.37 Peak

Detector mode: Peak

Polarity: Vertical



Site : chamber

Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60Hz

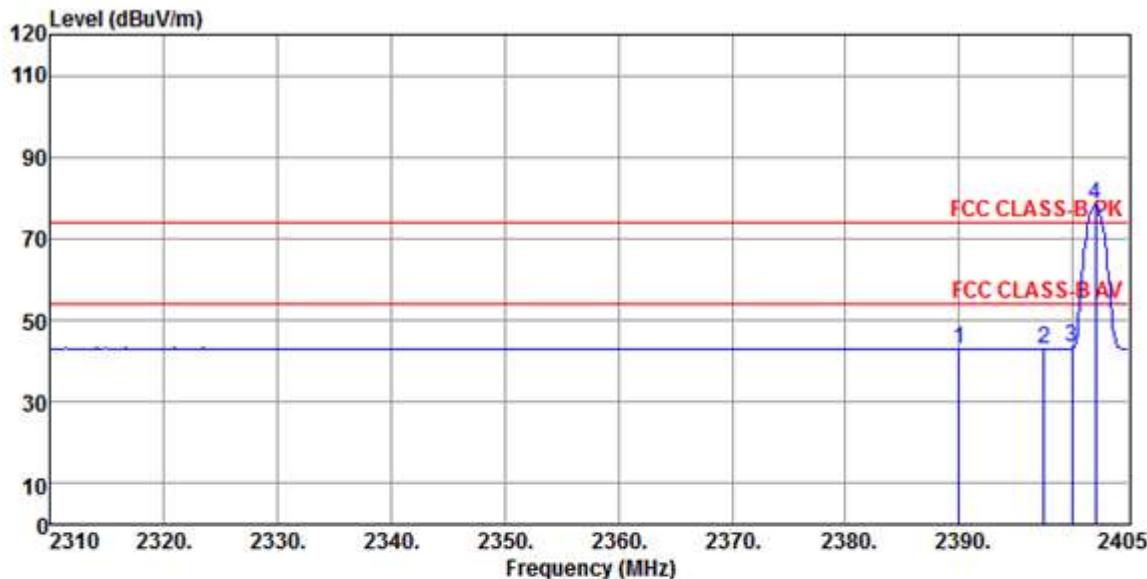
Mode : BT 8DPSK CH0

Memo :

Freq	ReadAntenna		Cable Preamp		Limit	Over	Remark	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2389.99	57.11	27.58	7.13	38.34	53.48	74.00	-20.52 Peak
2	2399.21	58.76	27.58	7.13	38.34	55.13	74.00	-18.87 Peak
3	2399.97	57.64	27.58	7.13	38.34	54.01	74.00	-19.99 Peak
4 pp	2401.96	87.46	27.54	7.13	38.34	83.79	74.00	9.79 Peak

Detector mode: Average

Polarity: Horizontal



Site : chamber

Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60Hz

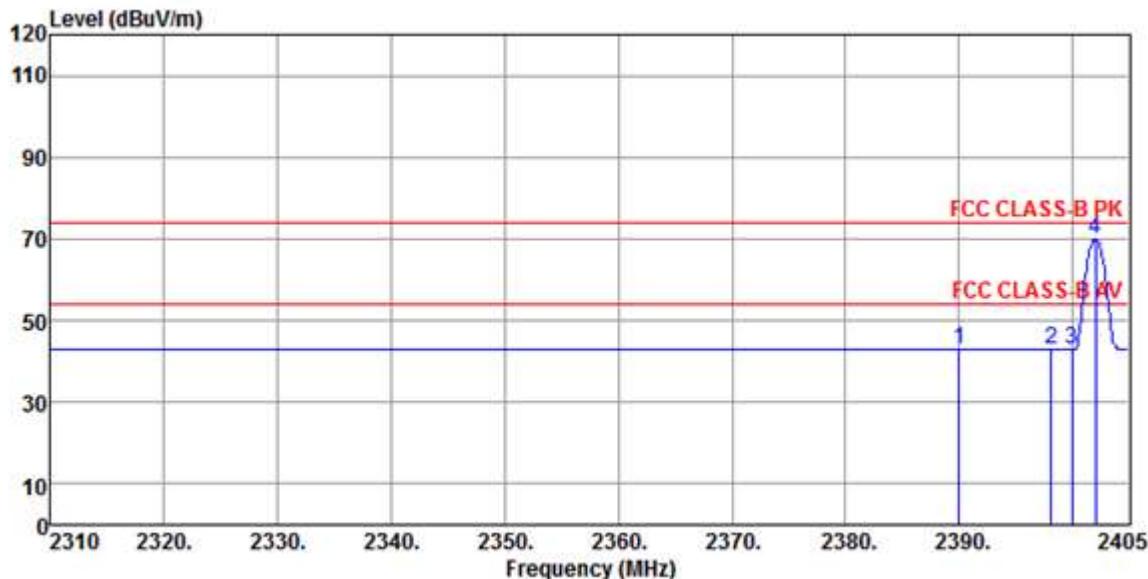
Mode : BT 8DPSK CH0

Memo :

Freq	ReadAntenna		Cable		Preamp	Limit	Over	Line	Limit	Remark
	Level	Factor	Loss	Factor						
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB			
1	2389.99	46.54	27.58	7.13	38.34	42.91	54.00	-11.09	Average	
2	2397.50	46.64	27.58	7.13	38.34	43.01	54.00	-10.99	Average	
3	2399.97	46.86	27.58	7.13	38.34	43.23	54.00	-10.77	Average	
4 pp	2402.06	81.85	27.54	7.13	38.34	78.18	54.00	24.18	Average	

Detector mode: Average

Polarity: Vertical



Site : chamber

Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60Hz

Mode : BT 8DPSK CH0

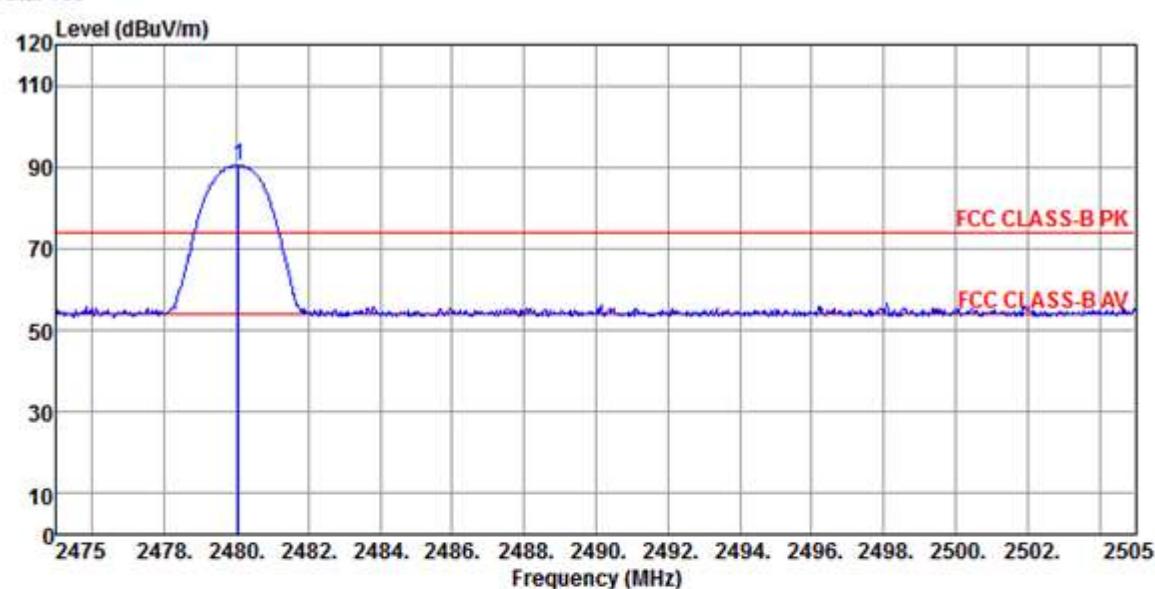
Memo :

Freq	ReadAntenna		Cable Preamp		Limit	Over	Remark	
	Freq	Level	Factor	Loss	Factor			
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	2389.99	46.58	27.58	7.13	38.34	42.95	54.00	-11.05 Average
2	2398.16	46.65	27.58	7.13	38.34	43.02	54.00	-10.98 Average
3	2399.97	46.64	27.58	7.13	38.34	43.01	54.00	-10.99 Average
4 pp	2402.06	73.53	27.54	7.13	38.34	69.86	54.00	15.86 Average

## BT 8-DPSK (High Channel)

Detector mode: Peak

Polarity: Horizontal



Site : chamber

Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60Hz

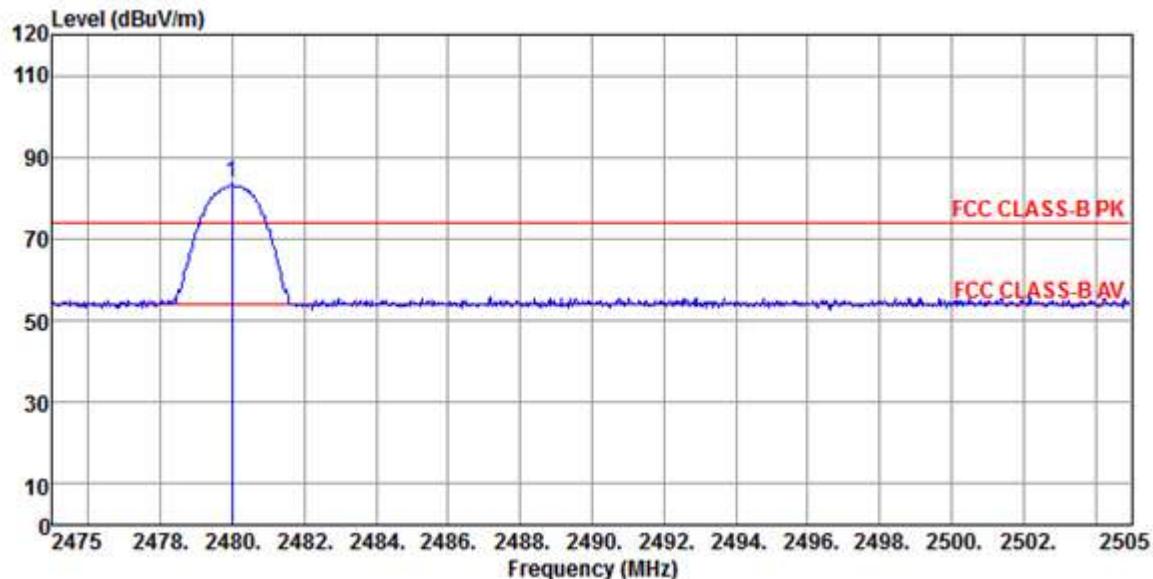
Mode : BT 8DPSK CH78

Memo :

Freq	ReadAntenna		Cable Preamp		Limit Level	Over Line Limit	Over Remark
	MHz	dBuV	dB/m	dB			
1 pp	2480.07	93.90	27.52	7.41	38.31	90.52	74.00 16.52 Peak

Detector mode: Peak

Polarity: Vertical



Site : chamber

Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60Hz

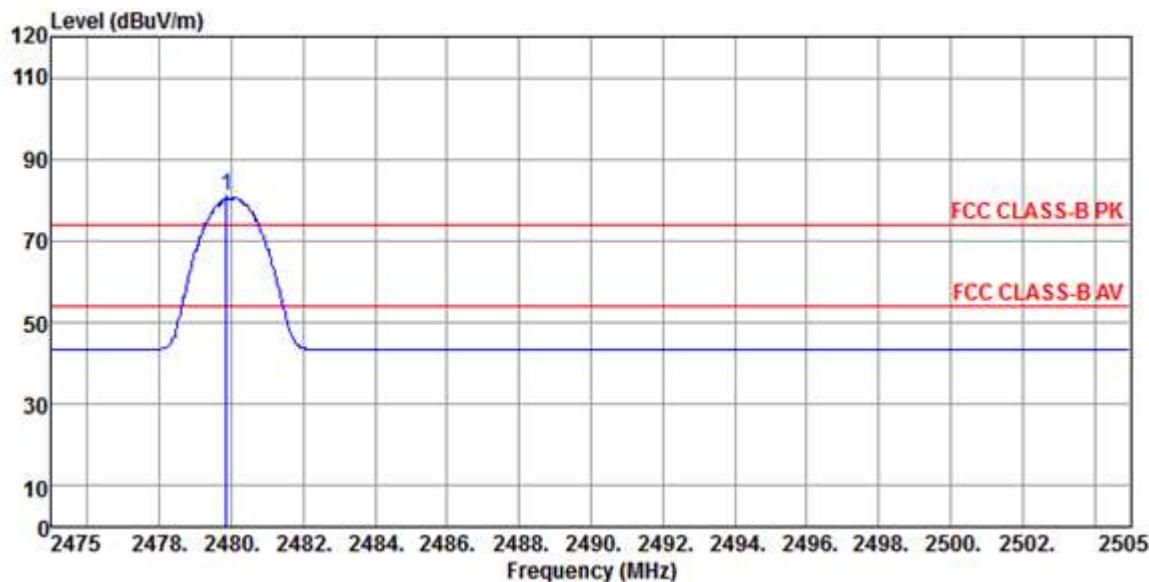
Mode : BT 8DPSK CH78

Memo :

Freq	ReadAntenna		Cable		Preamp	Limit	Over	Line	Limit	Remark
	Level	Factor	Loss	Factor						
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB			
1 pp	2479.98	87.03	27.52	7.41	38.31	83.65	74.00	9.65	Peak	

Detector mode: Average

Polarity: Horizontal



Site : chamber

Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60Hz

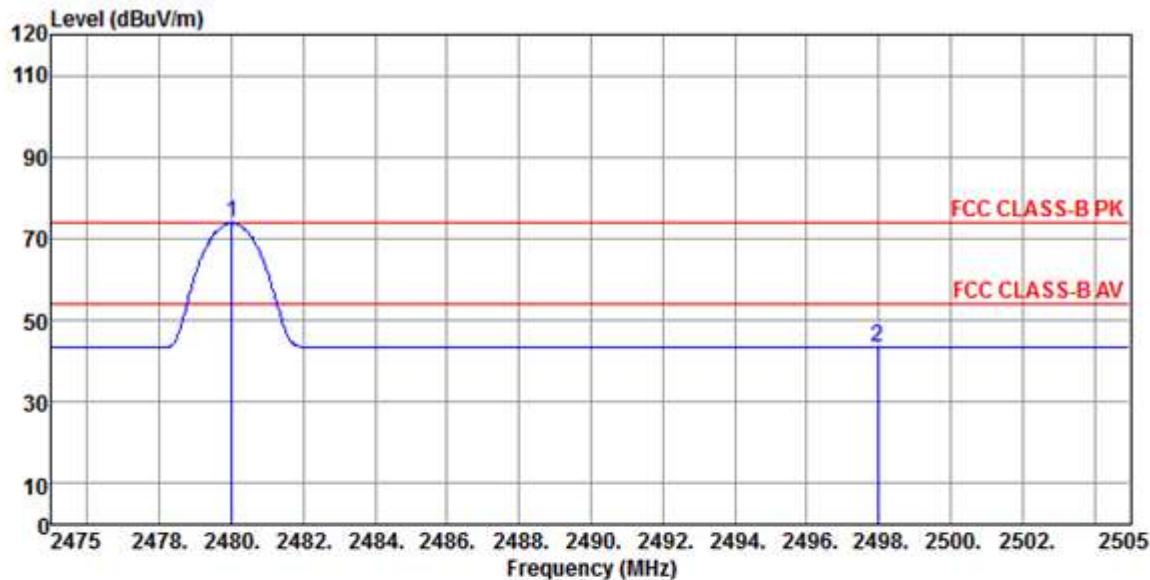
Mode : BT 8DPSK CH78

Memo :

	ReadAntenna	Cable	Preamp	Limit	Over	
Freq	Level	Factor	Loss	Level	Line	Limit
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m
1 pp	2479.86	84.19	27.52	7.41	38.31	80.81
					54.00	26.81
					Average	

Detector mode: Average

Polarity: Vertical



Site : chamber

Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

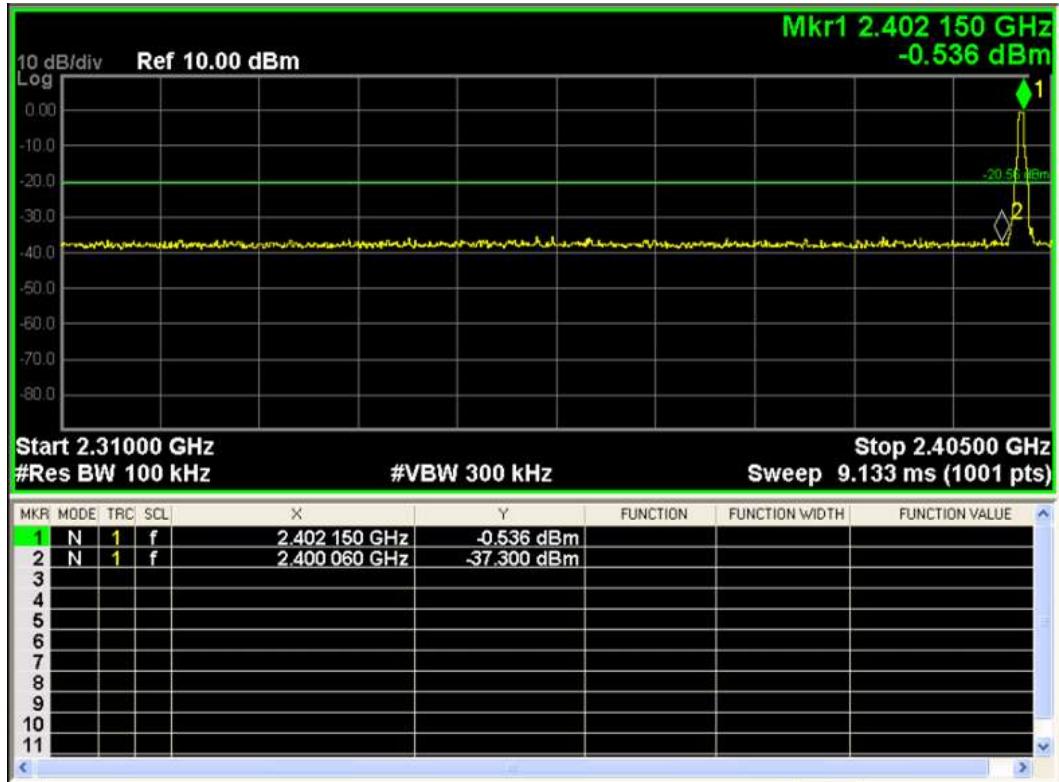
Power Rating: AC 120V/60Hz

Mode : BT 8DPSK CH78

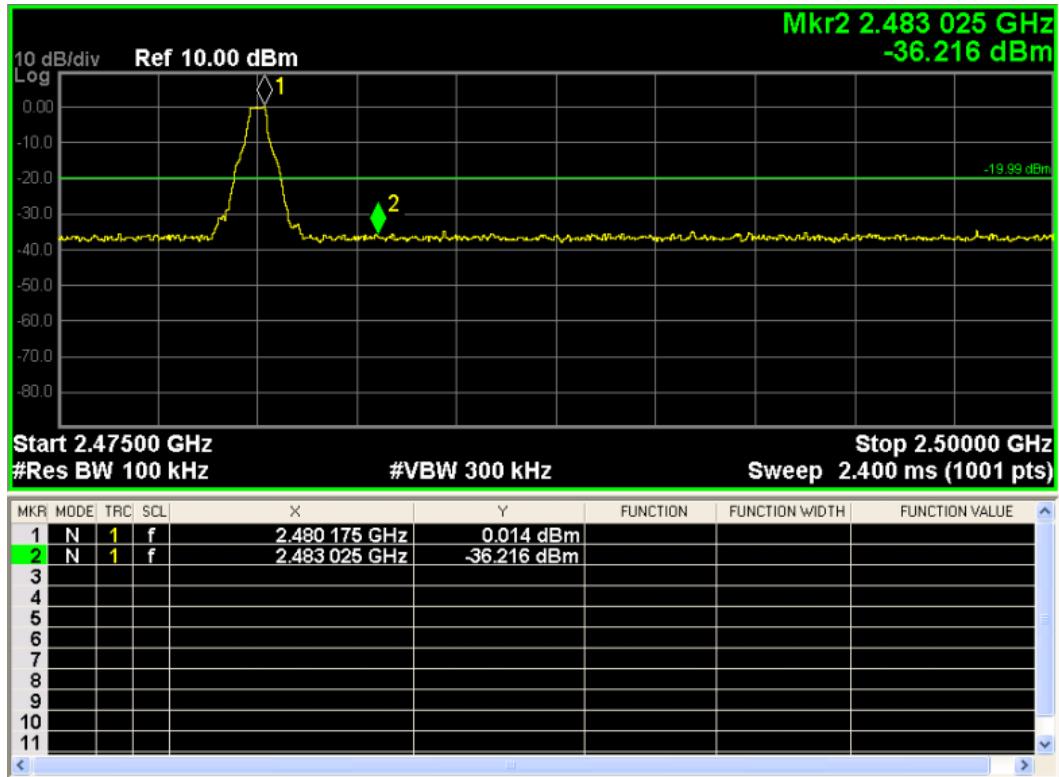
Memo :

	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 pp	2480.01	77.26	27.52	7.41	38.31	73.88	54.00	19.88 Average
2	2497.98	46.74	27.55	7.43	38.30	43.42	54.00	-10.58 Average

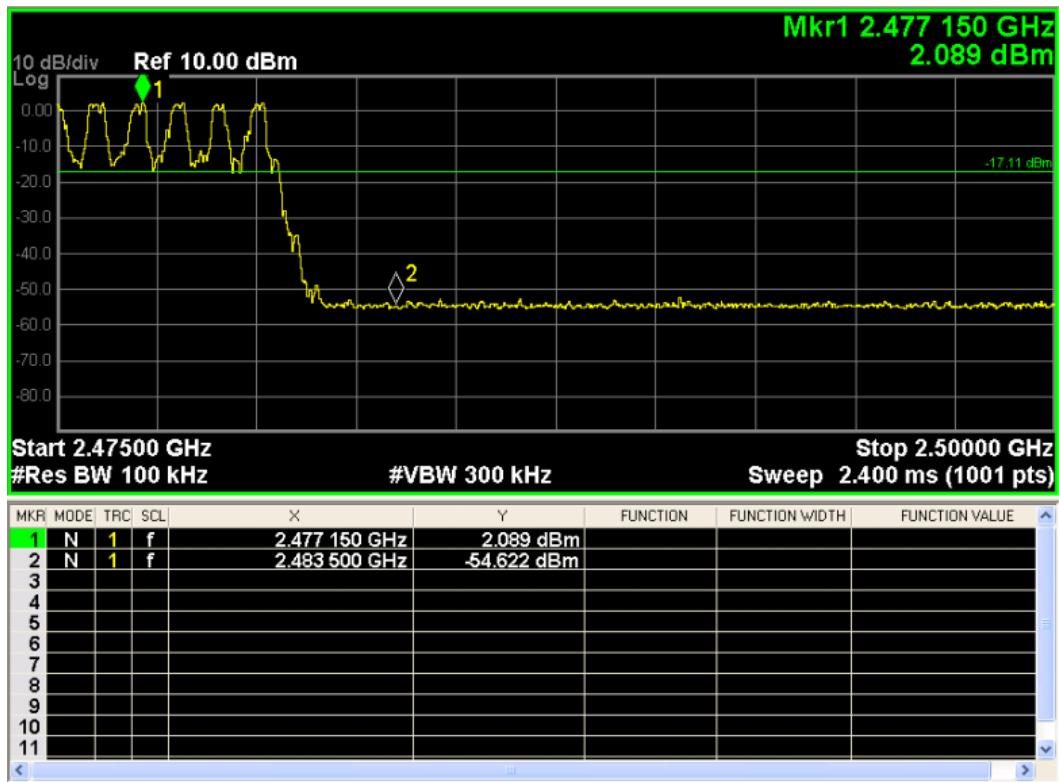
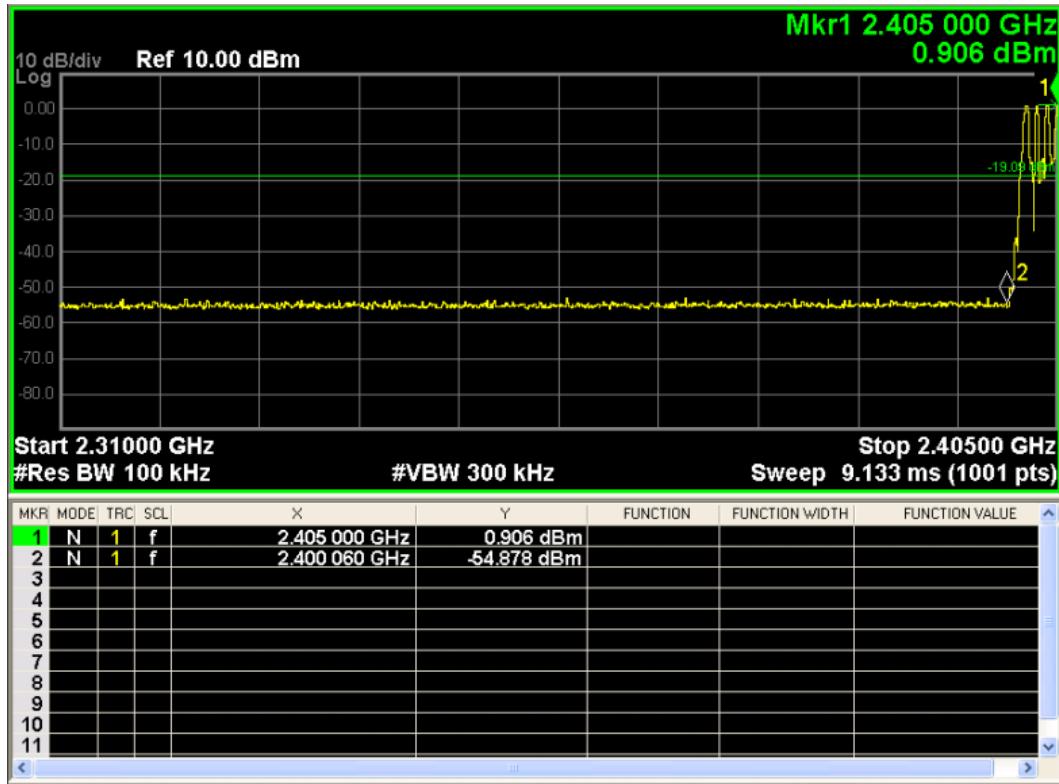
## Conducted Band Edge: GFSK CH0



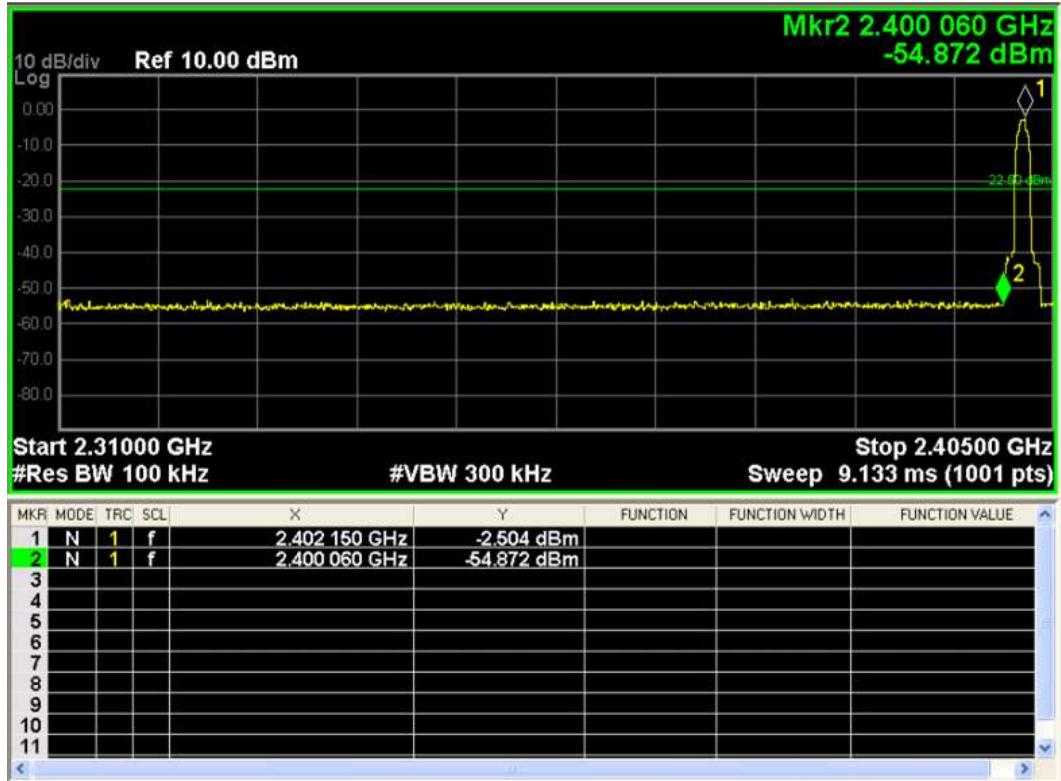
**GFSK CH78**



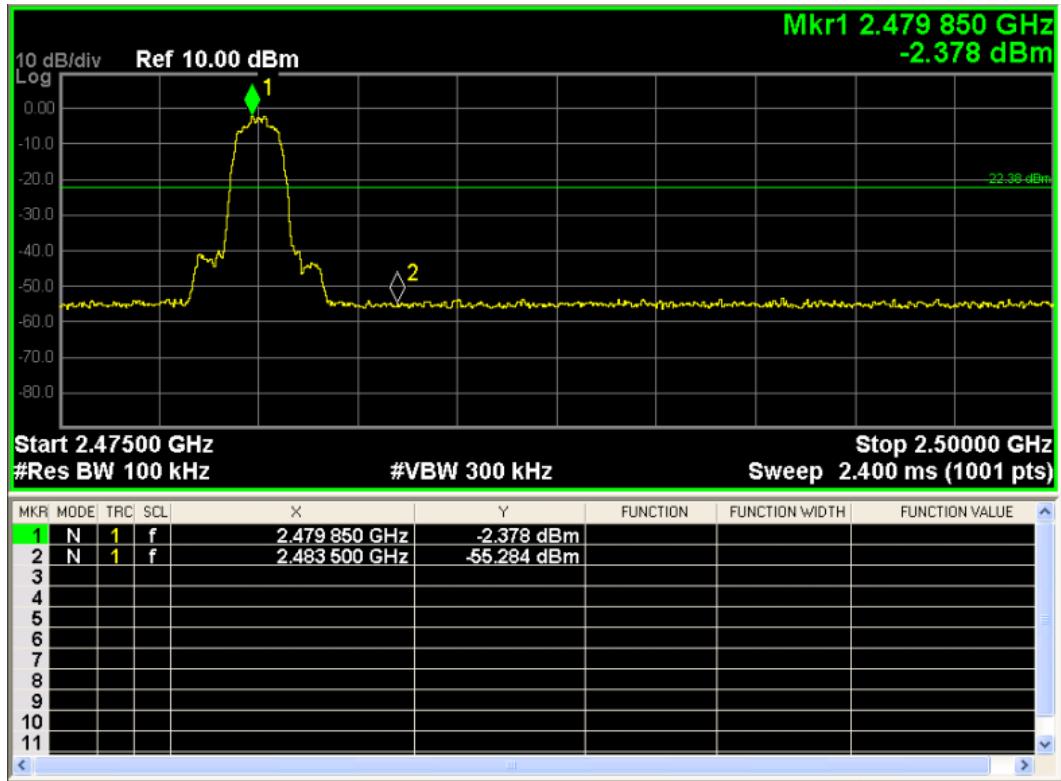
## GFSK (Hopping Mode)



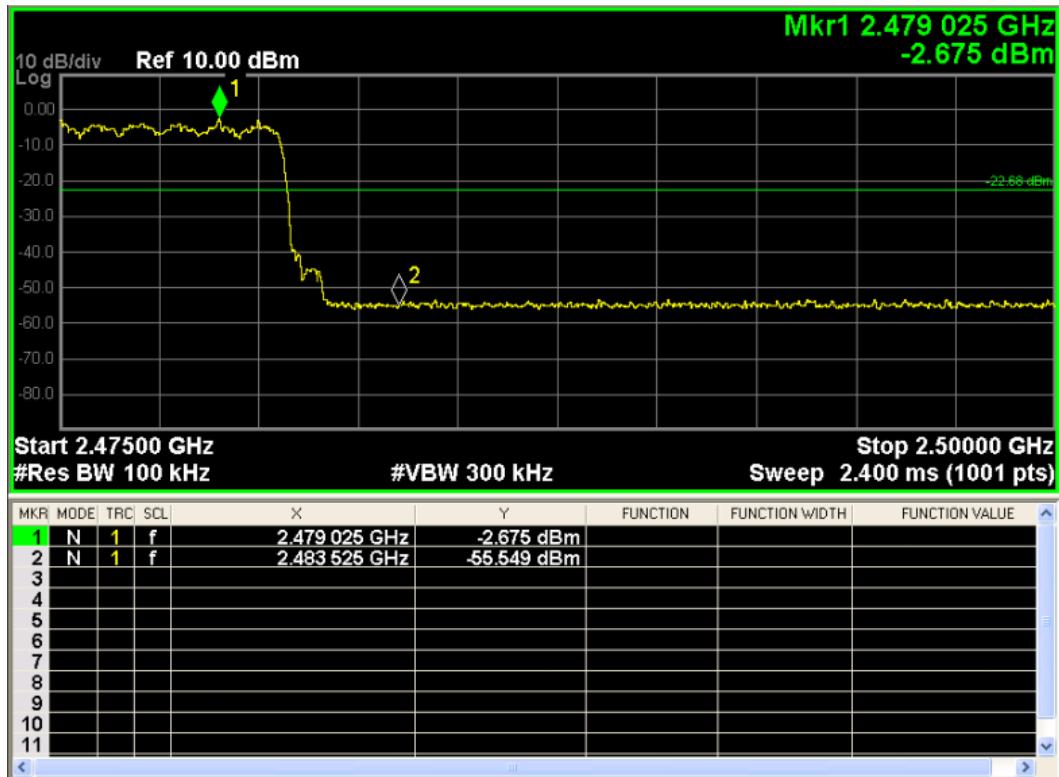
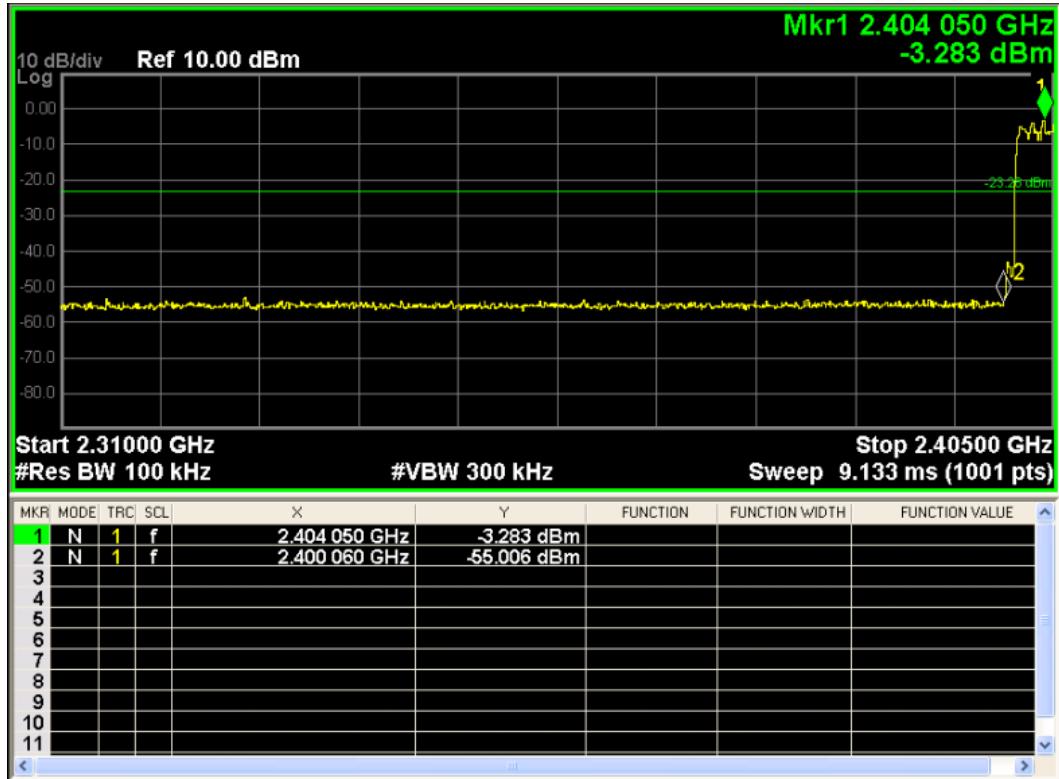
Π /4-DQPSK CH0



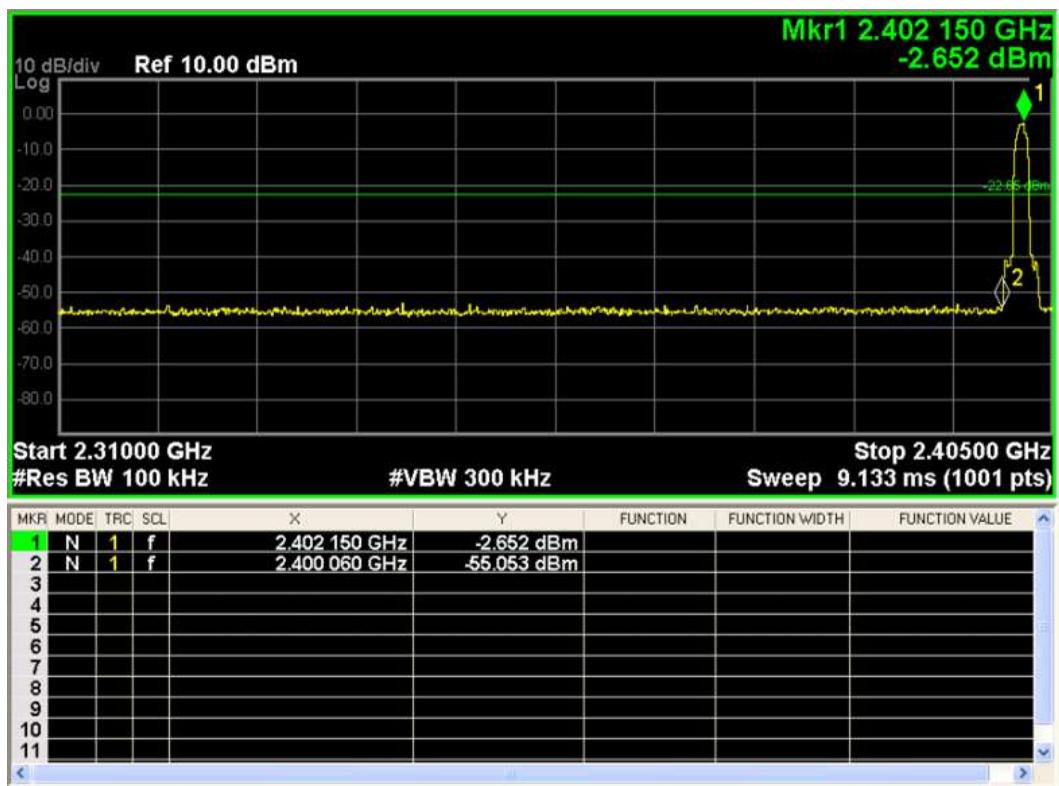
Π /4-DQPSK CH78



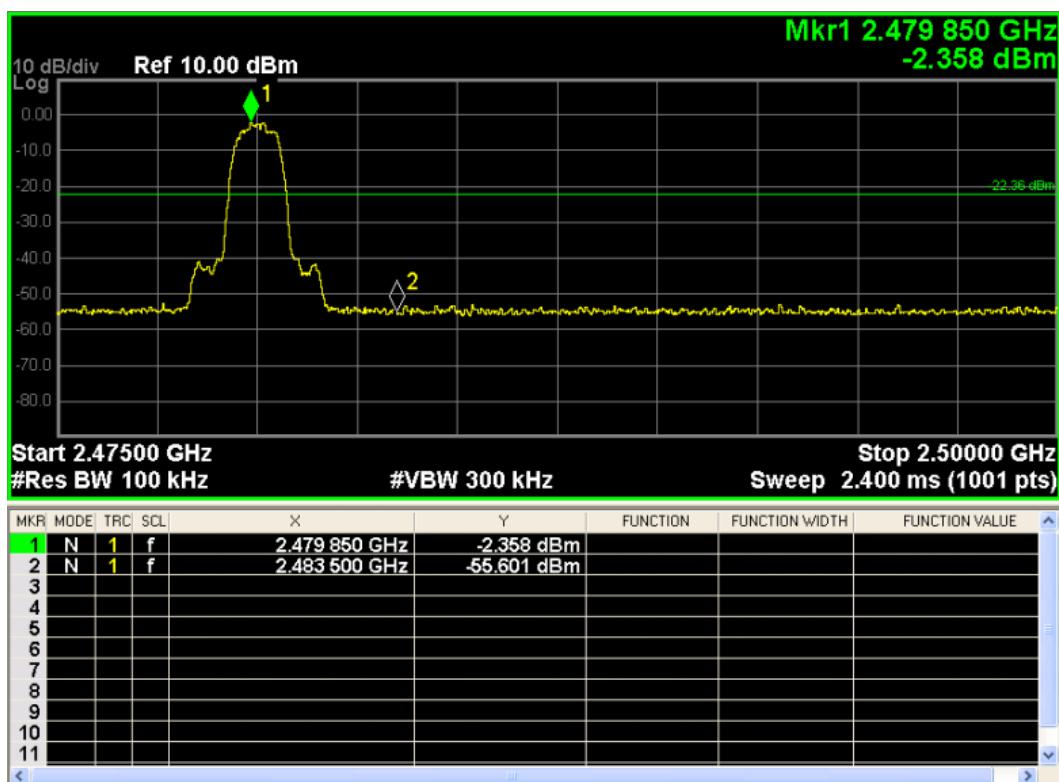
## Π /4-DQPSK(Hopping Mode)



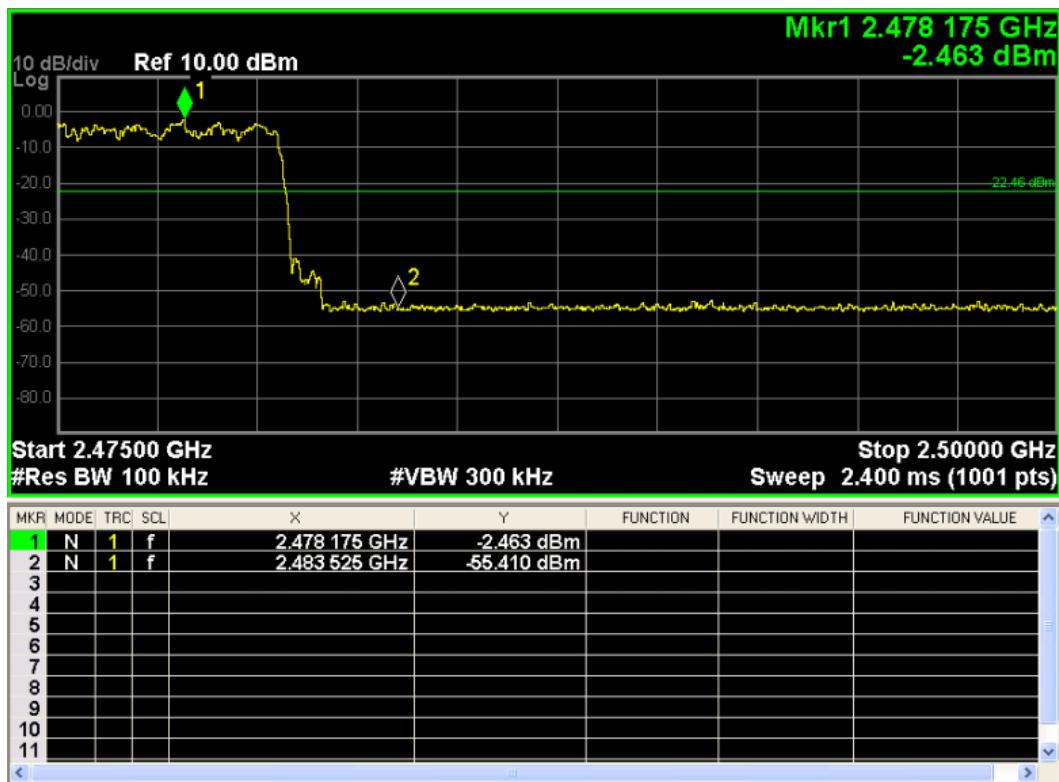
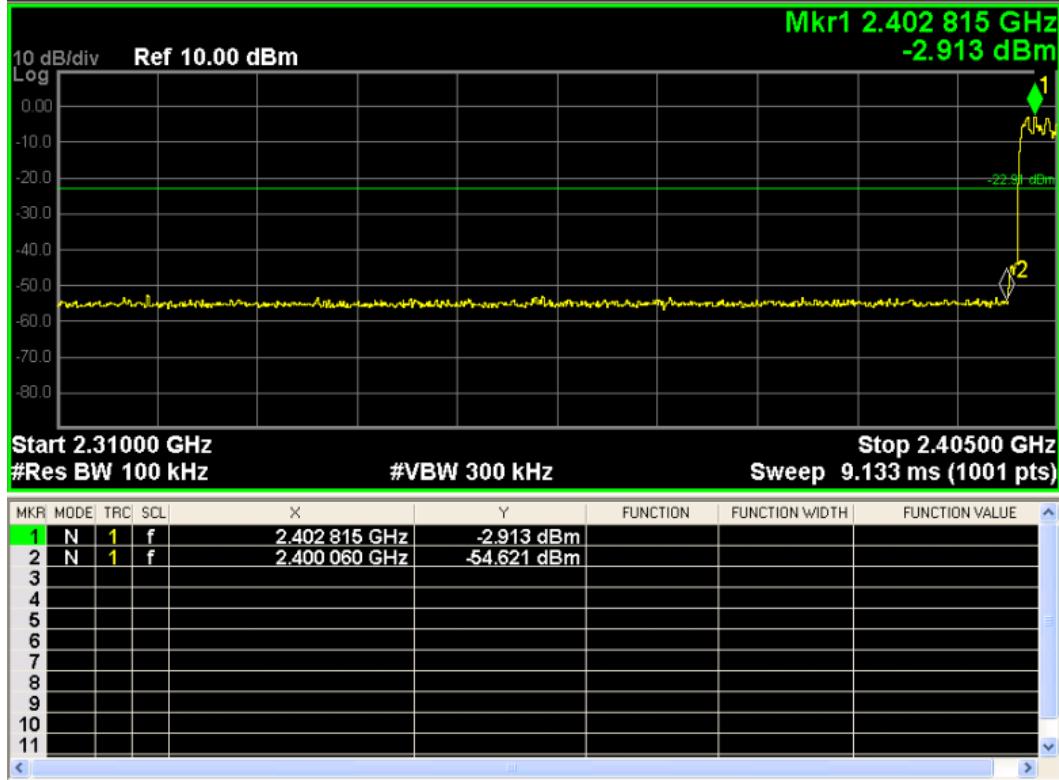
## 8DPSK CHO



**8DPSK CH78**



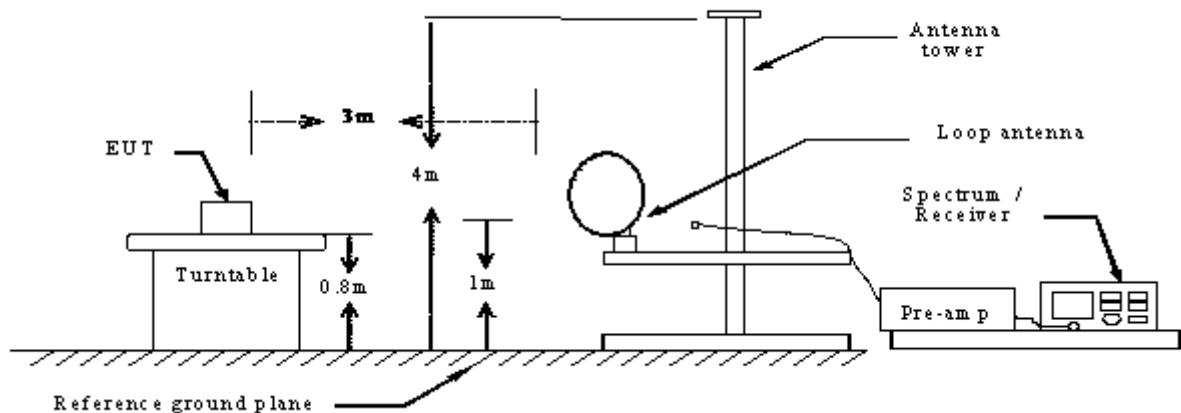
## **8DPSK (Hopping Mode)**



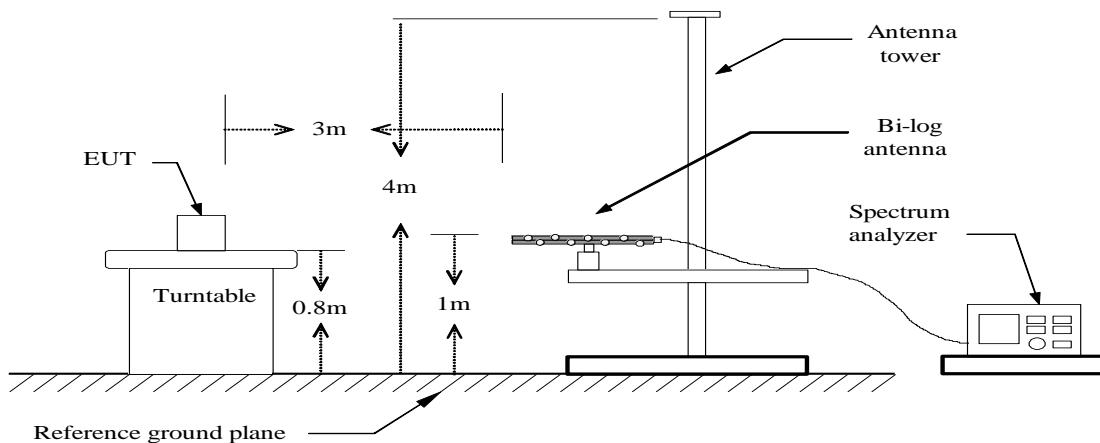
## 11. SPURIOUS EMISSIONS (RADIATION)

### 11.1 TEST SETUP

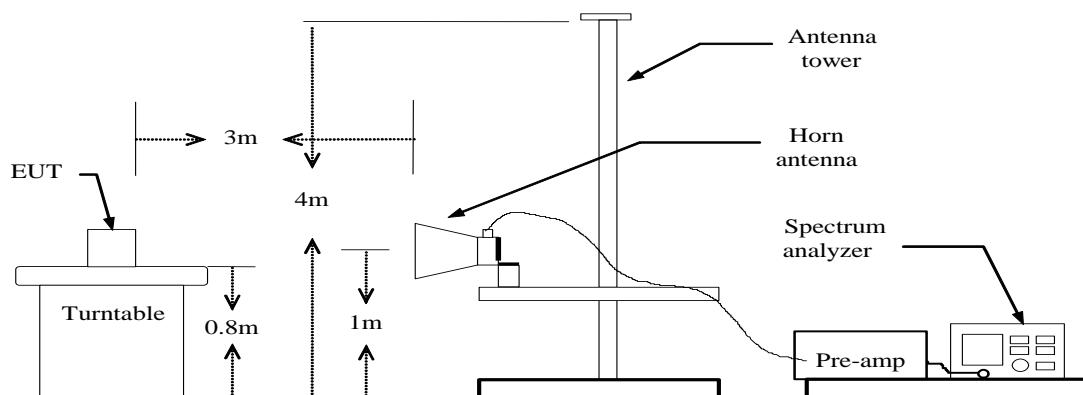
Radiated Spurious Measurement: below 30MHz



Radiated Spurious Measurement: below 1GHz



Radiated Spurious Measurement: above 1GHz



## 11.2 LIMITS

Frequency (MHz)	Limits (uV/m)	Limits(dBuV/m) At 3m	Measured Distance (m)
0.009-0.490	2400/F(KHz)	128.5-93.80	300
0.490-1.705	24000/F(KHz)	73.80-63.00	30
1.705-30.0	30	69.5	30
30~88	100	40	3
88~216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Notes: the calculate formula for below 30MHz

$$L2 = 20\lg(L1) + 40\lg(d1/d2)$$

L2: is the specified limit in dB microvolts per metre at distance d2.

L1: is the specified limit in microvolts per metre at distance d1.

For example:

$L1 = 2400/9 \text{ } (\mu\text{V/m})$ ,  $d1 = 300 \text{ (m)}$ ,  $d2 = 3 \text{ (m)}$ , so L2 as follows:

$$20\lg(2400/9) + 40\lg(300/3) = 128.5(\text{dB}\mu\text{V/m})$$

## 11.3 TEST PROCEDURE

### Radiated Emission ( 9 kHz – 30 MHz) :

Spurious emissions from the EUT are measured in the frequency range of 9 kHz to 30 MHz using a tuned receiver and a shielded loop antenna. The antenna was positioned 3 meters horizontally from the EUT. The RBW of the spectrum analyzer is set to 200Hz(measured frequency range was 9KHz~150KHz) or 9KHz(measured frequency range was 150KHz~30MHz). Measurements have been made in all three orthogonal axes and the shielded loop antenna was rotated to locate the maximum of the emissions. The emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz(these two bands employing a average detector)

### Radiated Emission ( 30 MHz – 1000 MHz) :

According to description of ANSI C63.4: 2009 sec.13.4, the preliminary radiated emissions measurement were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT. The EUT configuration (in X, Y and Z axis), cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements. The measurement is carried out using a spectrum analyzer or receiver. The Quasi-peak detector is used and RBW is set to 120kHz.The antenna height and turn table rotation is adjusted until the maximum power value is founded on spectrum analyzer or receiver.

### **Radiated Emission (Above 1 GHz):**

According to description of ANSI C63.4: 2009 sec.13.4, the preliminary radiated emissions measurement were carried out. The preliminary radiated measurements were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT. The EUT configuration (in X, Y and Z axis), cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for the final radiated emissions measurements. The measurement is carried out using a spectrum analyzer or receiver. The spectrum analyzer scans from 1GHz to 25GHz (higher than the 10<sup>th</sup> harmonic of the carrier). The peak detector is used for Peak limit and RBW is set to 1MHz ,VBW  $\geq$  3RBW. The peak detector is used for Average limit and RBW is set to 1MHz ,VBW=1kHz is not smaller than 1/T, T = to the shortest pulse width. The antenna height and turn table rotation is adjusted until the maximum power value is founded on spectrum analyzer or receiver.

## 11.4 RESULTS & PERFORMANCE

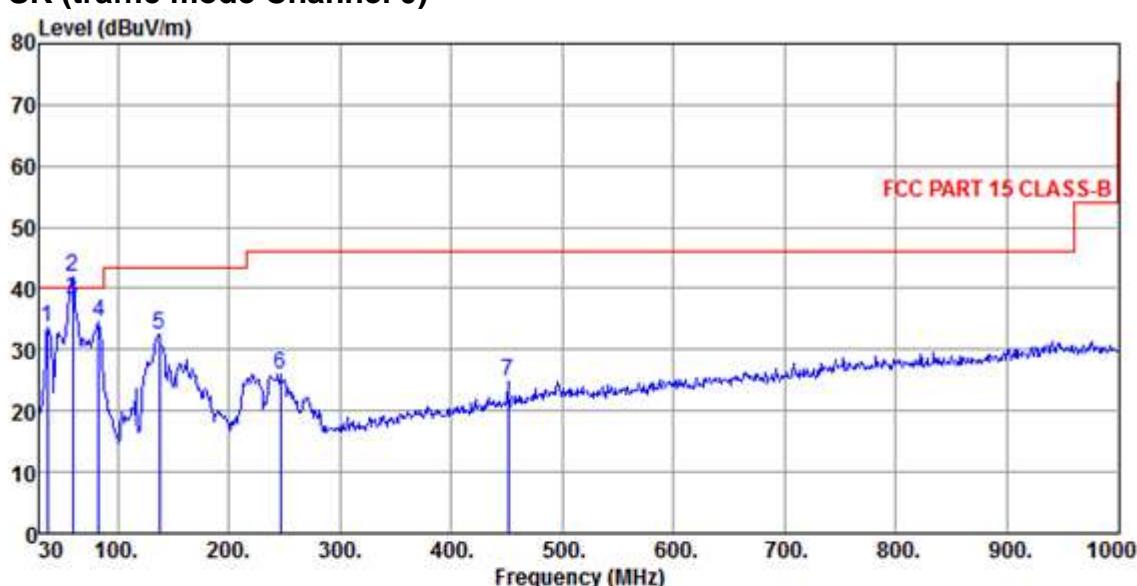
### From 9kHz to 30MHz:

The test data was 20dB lower than the permissible limit was not recorded in the report.

### From 30MHz to 1GHz:

Only show the worst test data when EUT was operated on different mode.

#### BT GFSK (traffic mode Channel 0)



Site : chamber

Condition : FCC PART 15 CLASS-B 3m VULB9160 VERTICAL

EUT :

Model Name :

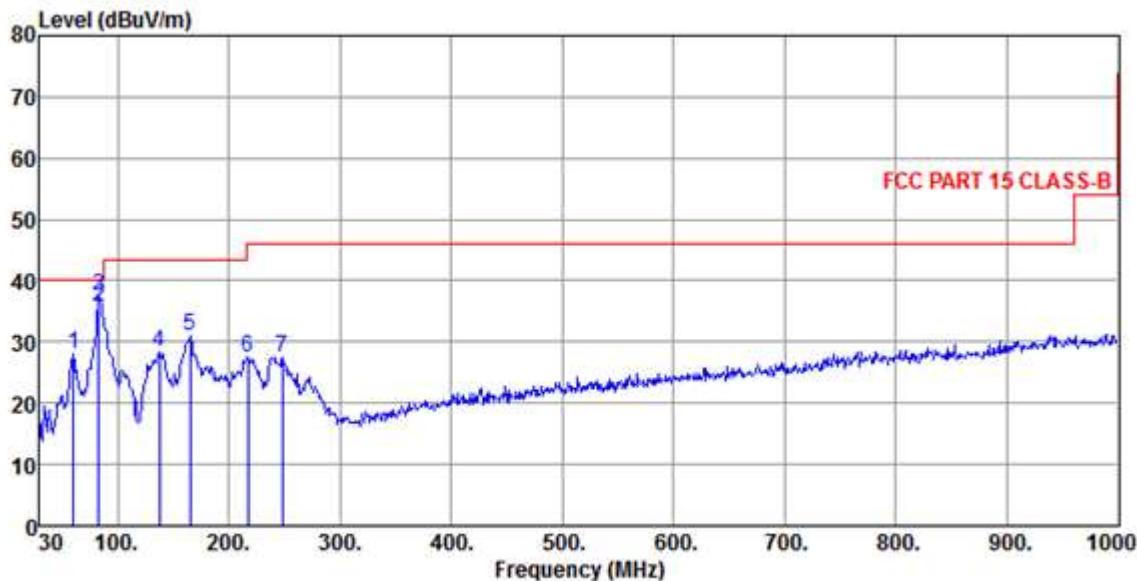
Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60HZ

Mode : GFSK CH0

Memo :

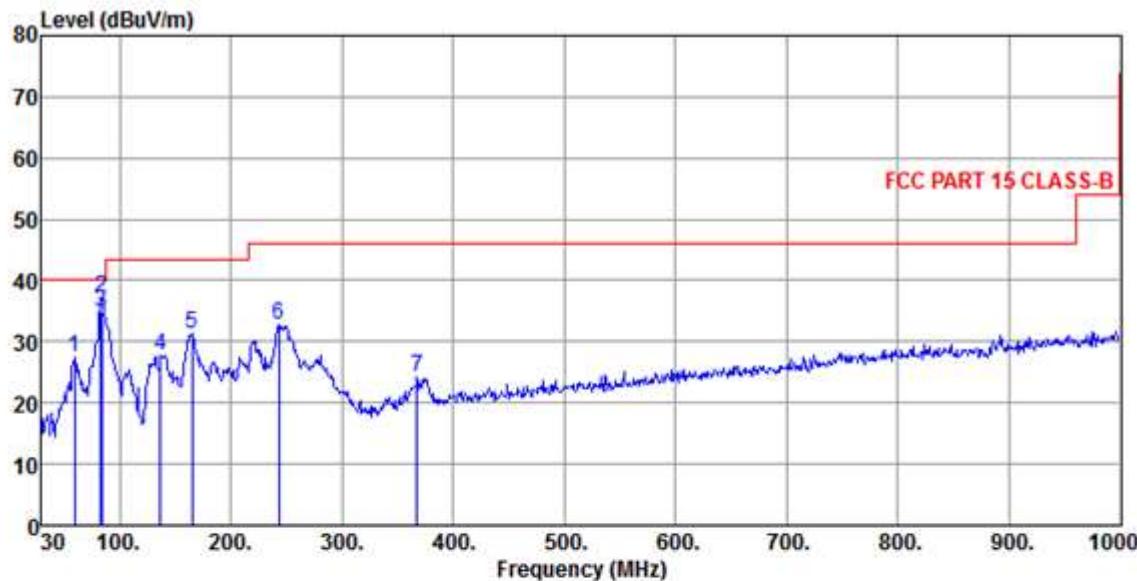
Freq	ReadAntenna		Cable Preamp		Limit Level	Line	Over Limit	Remark
	MHz	dBuV	Factor	Loss Factor				
1	36.79	20.35	12.51	0.77	0.00	33.63	40.00	-6.37 Peak
2 pp	59.10	28.16	12.58	1.04	0.00	41.78	40.00	1.78 Peak
3 qp	59.22	24.40	12.58	1.04	0.00	38.02	40.00	-1.98 QP
4	83.35	24.70	8.68	1.09	0.00	34.47	40.00	-5.53 Peak
5	137.67	17.70	13.21	1.62	0.00	32.53	43.50	-10.97 Peak
6	246.31	12.14	11.84	2.14	0.00	26.12	46.00	-19.88 Peak
7	450.98	5.60	16.39	2.88	0.00	24.87	46.00	-21.13 Peak



Site : chamber  
Condition : FCC PART 15 CLASS-B 3m VULB9160 HORIZONTAL  
EUT :  
Model Name :  
Temp/Humi : 23 °C / 54 %  
Power Rating: AC 120V/60HZ  
Mode : GFSK CH0  
Memo :

Freq	ReadAntenna		Cable Preamp		Limit Level	Over Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB				
1	60.07	14.25	12.67	1.05	0.00	27.97	40.00	-12.03 Peak
2 qp	83.24	26.01	8.73	1.09	0.00	35.83	40.00	-4.17 QP
3 pp	83.35	27.67	8.68	1.09	0.00	37.44	40.00	-2.56 Peak
4	137.67	13.44	13.21	1.62	0.00	28.27	43.50	-15.23 Peak
5	164.83	15.68	13.55	1.76	0.00	30.99	43.50	-12.51 Peak
6	217.21	14.82	10.68	2.06	0.00	27.56	46.00	-18.44 Peak
7	248.25	13.31	11.88	2.15	0.00	27.34	46.00	-18.66 Peak

### BT GFSK (traffic mode Channel 39)



Site : chamber

Condition : FCC PART 15 CLASS-B 3m VULB9160 HORIZONTAL

EUT :

Model Name :

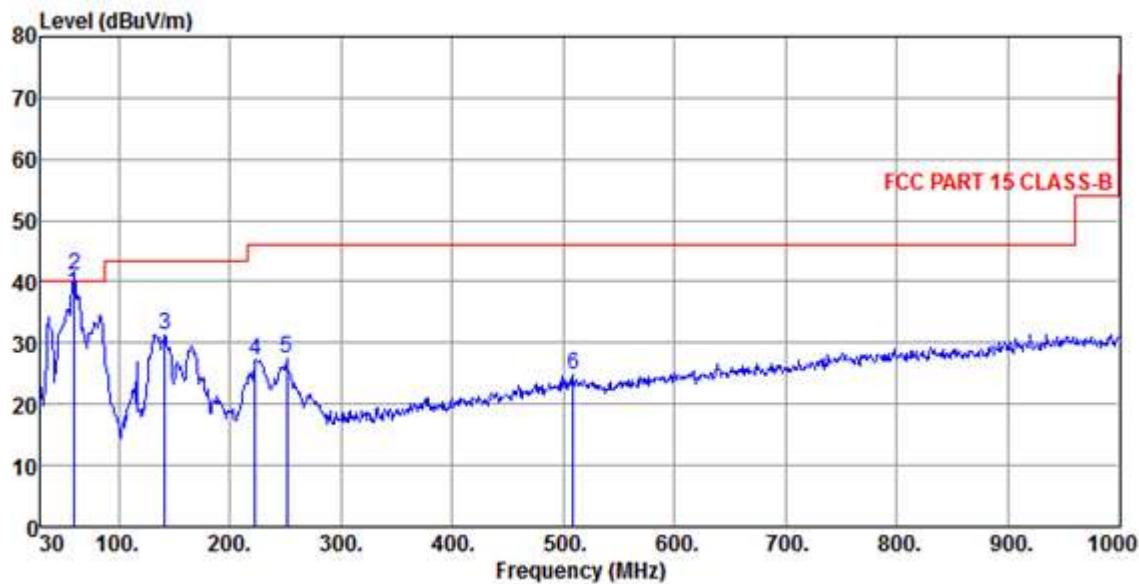
Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60HZ

Mode : GFSK CH39

Memo :

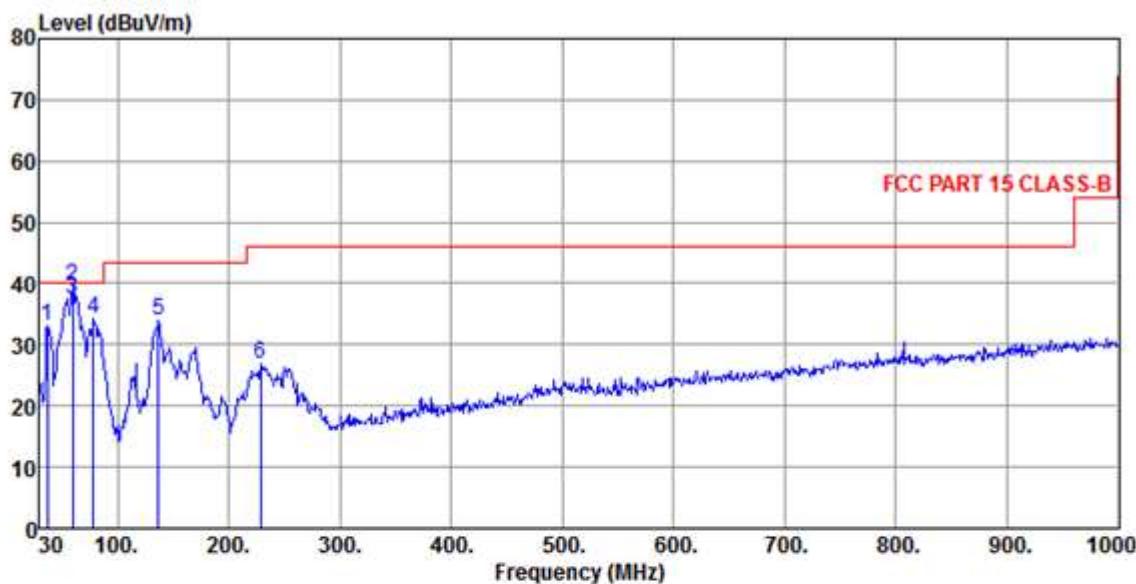
Freq	ReadAntenna		Cable		Preamp	Limit	Over	Line	Limit	Remark
	Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	59.10	13.95	12.58	1.04	0.00	27.57	40.00	-12.43	Peak	
2 pp	83.35	27.52	8.68	1.09	0.00	37.29	40.00	-2.71	Peak	
3 qp	83.87	25.16	8.68	1.09	0.00	34.93	40.00	-5.07	QP	
4	136.70	13.02	13.21	1.62	0.00	27.85	43.50	-15.65	Peak	
5	164.83	15.85	13.55	1.76	0.00	31.16	43.50	-12.34	Peak	
6	243.40	18.75	11.79	2.13	0.00	32.67	46.00	-13.33	Peak	
7	367.56	6.92	14.54	2.70	0.00	24.16	46.00	-21.84	Peak	



Site : chamber  
Condition : FCC PART 15 CLASS-B 3m VULB9160 VERTICAL  
EUT :  
Model Name :  
Temp/Humi : 23 °C / 54 %  
Power Rating: AC 120V/60HZ  
Mode : GFSK CH39  
Memo :

Freq	MHz	Read	Antenna	Cable	Preamp	Limit	Line	Over	Limit	Remark
		Level	Factor	Loss	Factor					
1 qp	59.14	24.46	12.58	1.04	0.00	38.08	40.00	-1.92	QP	
2 pp	60.07	27.27	12.67	1.05	0.00	40.99	40.00	0.99	Peak	
3	141.55	16.26	13.47	1.62	0.00	31.35	43.50	-12.15	Peak	
4	223.03	14.31	10.86	2.10	0.00	27.27	46.00	-18.73	Peak	
5	251.16	13.37	11.96	2.16	0.00	27.49	46.00	-18.51	Peak	
6	509.18	4.41	17.17	3.09	0.00	24.67	46.00	-21.33	Peak	

### BT GFSK (traffic mode Channel 78)



Site : chamber

Condition : FCC PART 15 CLASS-B 3m VULB9160 VERTICAL

EUT :

Model Name :

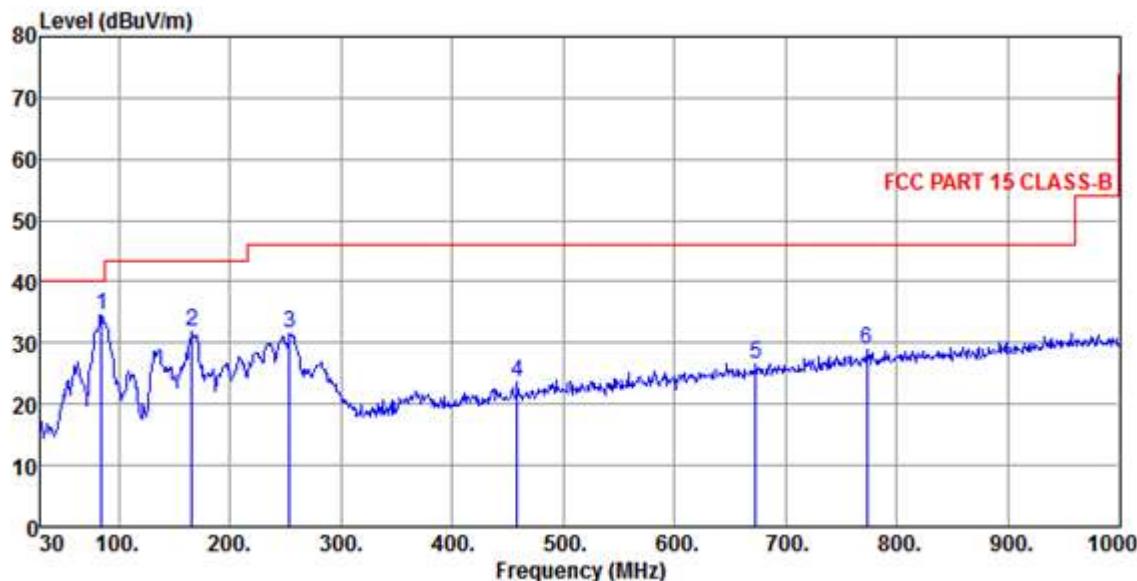
Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60HZ

Mode : GFSK CH78

Memo :

Freq	ReadAntenna		Cable		Preamp	Limit	Over	Line	Limit	Remark
	Level	Factor	Loss	Factor						
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB			
1	36.79	19.71	12.51	0.77	0.00	32.99	40.00	-7.01	Peak	
2 pp	59.10	25.95	12.58	1.04	0.00	39.57	40.00	-0.43	Peak	
3 qp	59.62	23.69	12.67	1.04	0.00	37.40	40.00	-2.60	QP	
4	78.50	23.92	9.14	1.09	0.00	34.15	40.00	-5.85	Peak	
5	136.70	19.04	13.21	1.62	0.00	33.87	43.50	-9.63	Peak	
6	228.85	13.62	11.14	2.05	0.00	26.81	46.00	-19.19	Peak	



Site : chamber

Condition : FCC PART 15 CLASS-B 3m VULB9160 HORIZONTAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

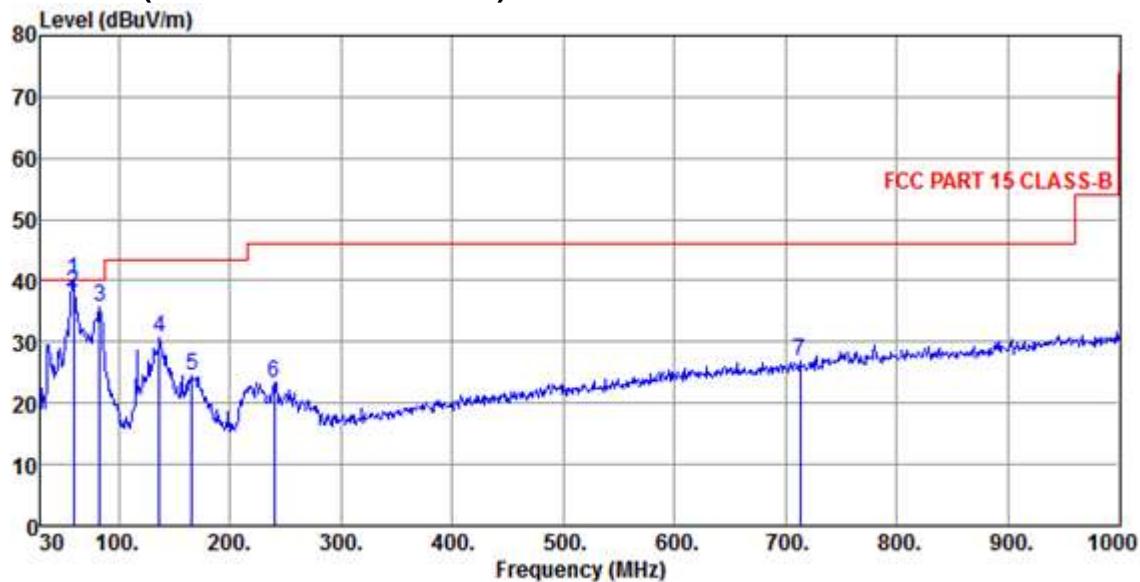
Power Rating: AC 120V/60HZ

Mode : GFSK CH78

Memo :

Freq	ReadAntenna MHz	Level dBuV	Antenna Factor	Cable Preamp		Limit Level dBuV/m	Over Line dB	Over Limit Remark
				Loss dB	Factor			
1 pp	84.32	24.74	8.68	1.09	0.00	34.51	40.00	-5.49 Peak
2	165.80	16.55	13.55	1.77	0.00	31.87	43.50	-11.63 Peak
3	254.07	17.28	12.00	2.17	0.00	31.45	46.00	-14.55 Peak
4	458.74	4.36	16.51	2.86	0.00	23.73	46.00	-22.27 Peak
5	673.11	3.21	19.80	3.56	0.00	26.57	46.00	-19.43 Peak
6	773.02	3.67	21.41	3.75	0.00	28.83	46.00	-17.17 Peak

### BT π/4-DQPSK(traffic mode Channel 0)



Site : chamber  
Condition : FCC PART 15 CLASS-B 3m VULB9160 VERTICAL

EUT :

Model Name :

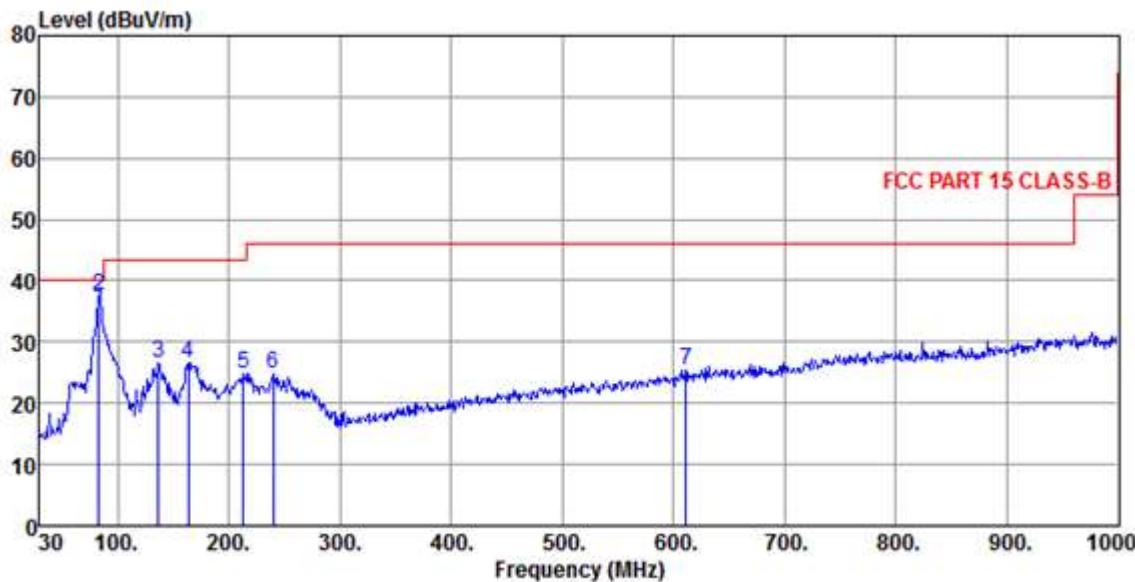
Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60HZ

Mode : π/4DQPSK CH0

Memo :

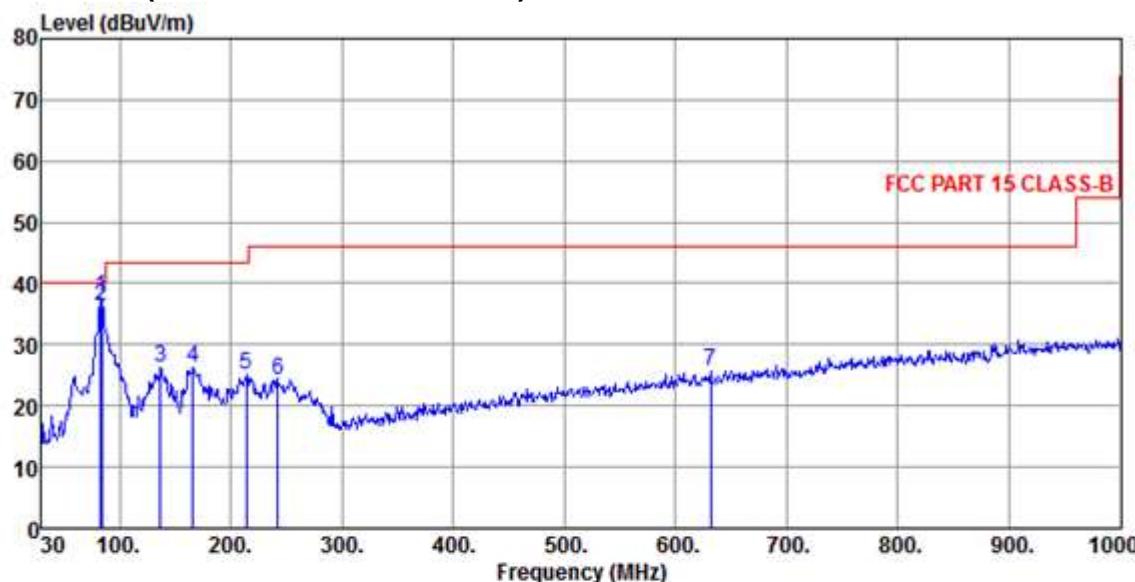
Freq	ReadAntenna		Cable Preamp		Limit Level	Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB				
1 pp	59.10	26.58	12.58	1.04	0.00	40.20	40.00	0.20 Peak
2 qp	59.24	24.33	12.58	1.04	0.00	37.95	40.00	-2.05 QP
3	83.35	25.99	8.68	1.09	0.00	35.76	40.00	-4.24 Peak
4	136.70	15.75	13.21	1.62	0.00	30.58	43.50	-12.92 Peak
5	165.80	9.06	13.55	1.77	0.00	24.38	43.50	-19.12 Peak
6	239.52	9.50	11.71	2.12	0.00	23.33	46.00	-22.67 Peak
7	712.88	2.97	20.37	3.63	0.00	26.97	46.00	-19.03 Peak



Site : chamber  
Condition : FCC PART 15 CLASS-B 3m VULB9160 HORIZONTAL  
EUT :  
Model Name :  
Temp/Humi : 23 °C / 54 %  
Power Rating: AC 120V/60HZ  
Mode : π/4DQPSK CH0  
Memo :

Freq	ReadAntenna		Cable Preamp		Limit Level	Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB				
1 qp	83.29	25.64	8.68	1.09	0.00	35.41	40.00	-4.59 QP
2 pp	83.35	27.65	8.68	1.09	0.00	37.42	40.00	-2.58 Peak
3	136.70	11.75	13.21	1.62	0.00	26.58	43.50	-16.92 Peak
4	163.86	11.13	13.66	1.74	0.00	26.53	43.50	-16.97 Peak
5	213.33	12.10	10.61	1.99	0.00	24.70	43.50	-18.80 Peak
6	239.52	10.88	11.71	2.12	0.00	24.71	46.00	-21.29 Peak
7	611.03	2.90	19.19	3.37	0.00	25.46	46.00	-20.54 Peak

**BT π/4-DQPSK(traffic mode Channel 39)**



Site : chamber

Condition : FCC PART 15 CLASS-B 3m VULB9160 HORIZONTAL

EUT :

Model Name :

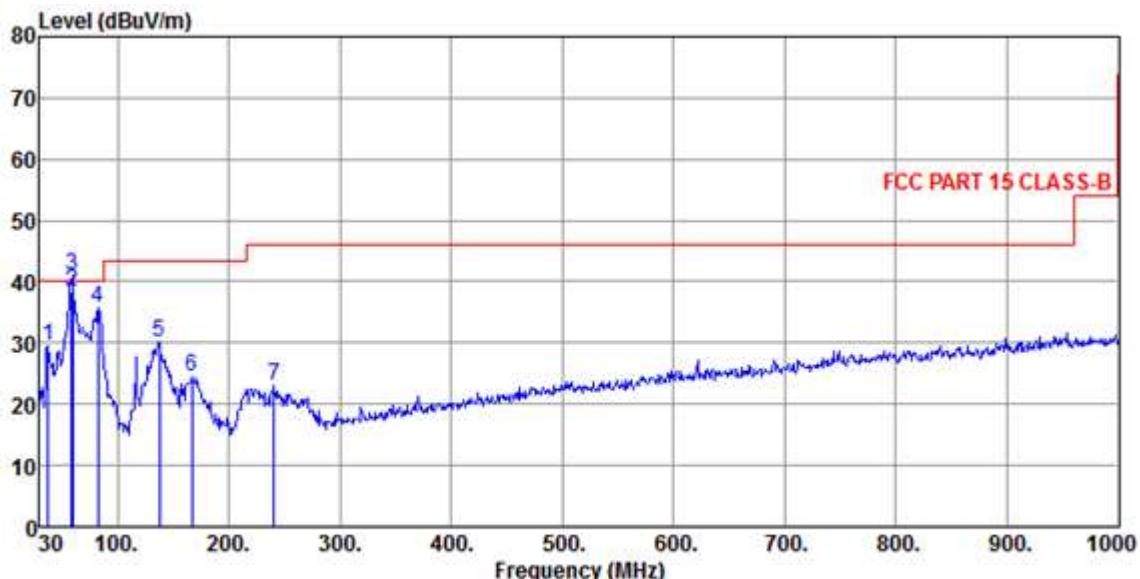
Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60HZ

Mode : π/4DQPSK CH39

Memo :

Freq	ReadAntenna MHz	Antenna Level dBuV	Cable Factor	Preamp Loss dB	Level dB	Limit dBuV/m	Over Line dBuV/m	Over Limit dB	
								Level	Line
1 pp	83.35	28.15	8.68	1.09	0.00	37.92	40.00	-2.08	Peak
2 qp	83.78	26.59	8.68	1.09	0.00	36.36	40.00	-3.64	QP
3	136.70	11.53	13.21	1.62	0.00	26.36	43.50	-17.14	Peak
4	165.80	10.99	13.55	1.77	0.00	26.31	43.50	-17.19	Peak
5	214.30	12.46	10.65	2.01	0.00	25.12	43.50	-18.38	Peak
6	242.43	10.31	11.75	2.13	0.00	24.19	46.00	-21.81	Peak
7	631.40	2.88	19.31	3.48	0.00	25.67	46.00	-20.33	Peak



Site : chamber

Condition : FCC PART 15 CLASS-B 3m VULB9160 VERTICAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

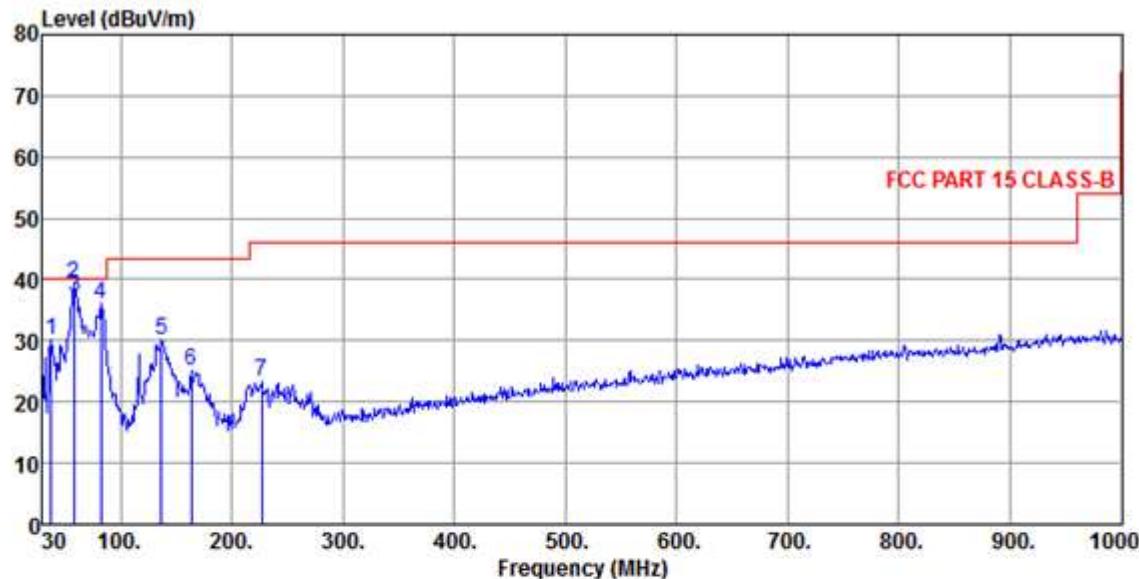
Power Rating: AC 120V/60HZ

Mode : π/4DQPSK CH39

Memo :

		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	37.76	16.33	12.51	0.79	0.00	29.63	40.00	-10.37 Peak
2 qp	58.69	24.87	12.58	1.03	0.00	38.48	40.00	-1.52 QP
3 pp	59.10	27.53	12.58	1.04	0.00	41.15	40.00	1.15 Peak
4	82.38	25.99	8.73	1.09	0.00	35.81	40.00	-4.19 Peak
5	137.67	15.39	13.21	1.62	0.00	30.22	43.50	-13.28 Peak
6	166.77	9.38	13.44	1.79	0.00	24.61	43.50	-18.89 Peak
7	240.49	9.11	11.71	2.12	0.00	22.94	46.00	-23.06 Peak

**BT II/4-DQPSK(traffic mode Channel 78)**



Site : chamber

Condition : FCC PART 15 CLASS-B 3m VULB9160 VERTICAL

EUT :

Model Name :

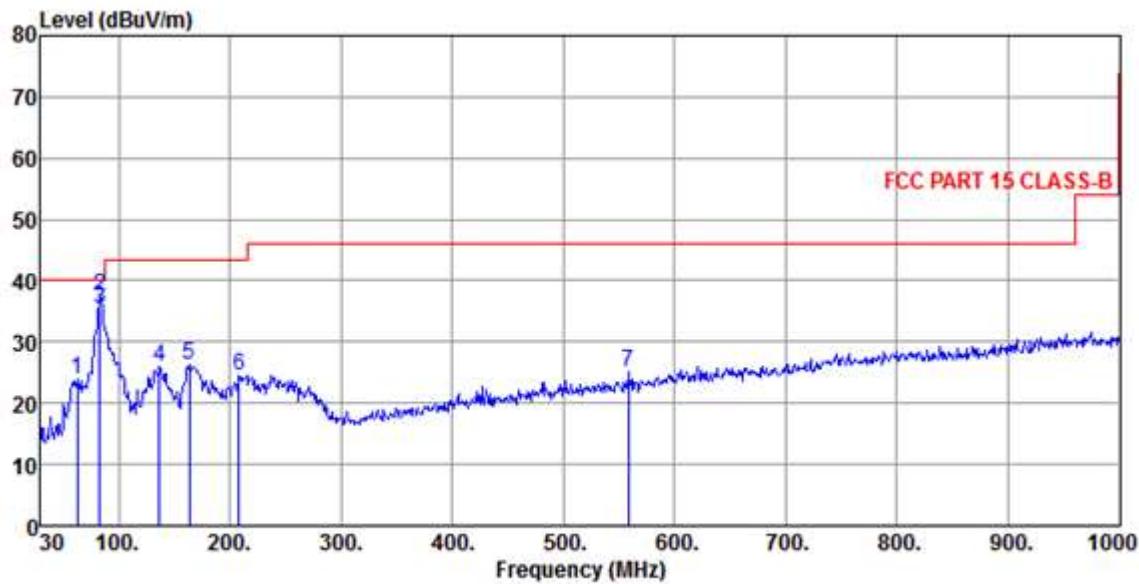
Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60HZ

Mode : π/4DQPSK CH78

Memo :

Freq	ReadAntenna		Cable Preamp		Limit Level	Over Line	Over Limit	Remark
	MHz	dBuV	Level Factor	Cable Loss Factor				
1	37.76	16.85	12.51	0.79	0.00	30.15	40.00	-9.85 Peak
2 pp	58.13	25.68	12.58	1.03	0.00	39.29	40.00	-0.71 Peak
3 qp	58.29	23.46	12.58	1.03	0.00	37.07	40.00	-2.93 QP
4	82.38	26.05	8.73	1.09	0.00	35.87	40.00	-4.13 Peak
5	136.70	15.19	13.21	1.62	0.00	30.02	43.50	-13.48 Peak
6	163.86	9.76	13.66	1.74	0.00	25.16	43.50	-18.34 Peak
7	226.91	10.27	11.05	2.07	0.00	23.39	46.00	-22.61 Peak



Site : chamber

Condition : FCC PART 15 CLASS-B 3m VULB9160 HORIZONTAL

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

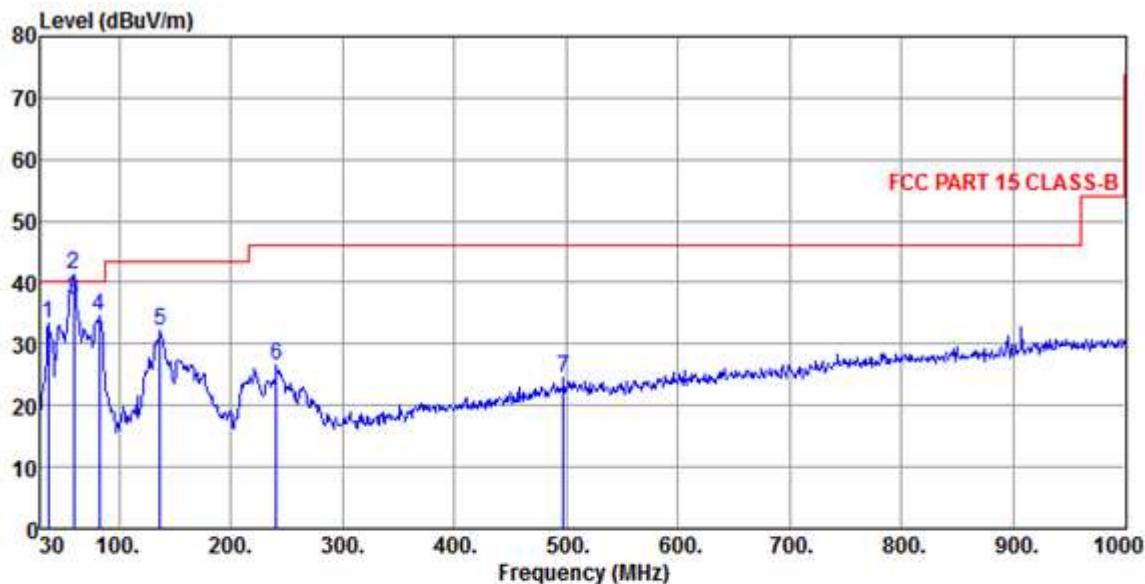
Power Rating: AC 120V/60HZ

Mode :  $\pi/4$ DQPSK CH78

Memo :

Freq	ReadAntenna		Cable Preamp		Limit	Over	Remark
	Level	Factor	Loss	Factor			
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	62.98	10.33	12.51	1.07	0.00	23.91	40.00 -16.09 Peak
2 pp	83.35	27.69	8.68	1.09	0.00	37.46	40.00 -2.54 Peak
3 qp	83.42	25.69	8.68	1.09	0.00	35.46	40.00 -4.54 QP
4	136.70	11.25	13.21	1.62	0.00	26.08	43.50 -17.42 Peak
5	163.86	10.90	13.66	1.74	0.00	26.30	43.50 -17.20 Peak
6	208.48	12.14	10.53	1.93	0.00	24.60	43.50 -18.90 Peak
7	558.65	3.67	18.12	3.23	0.00	25.02	46.00 -20.98 Peak

**BT 8-DPSK( traffic mode Channel 0)**



Site : chamber

Condition : FCC PART 15 CLASS-B 3m VULB9160 VERTICAL

EUT :

Model Name :

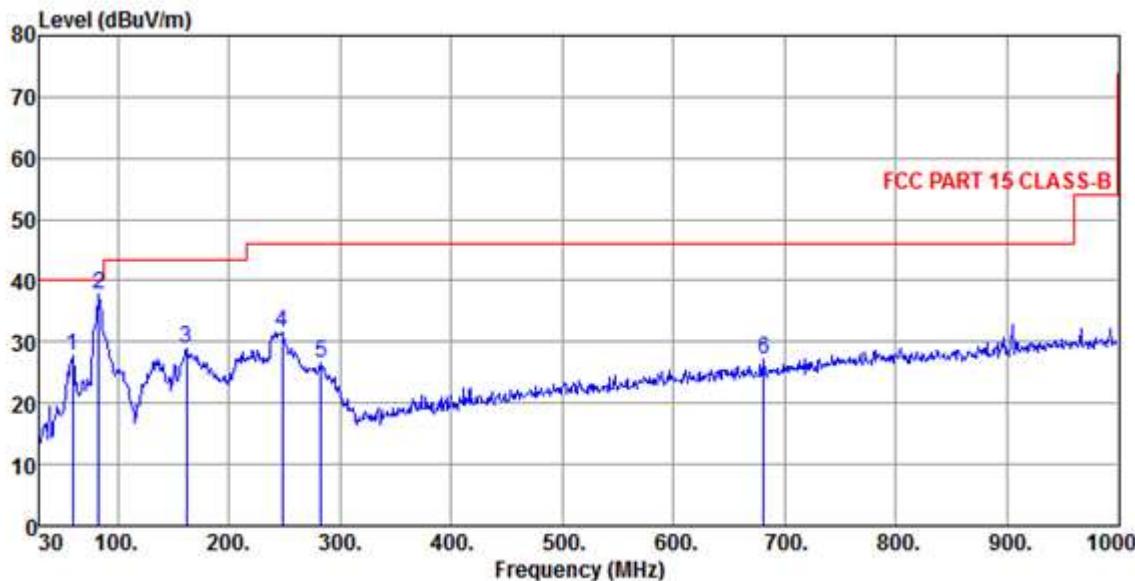
Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60HZ

Mode : 8DPSK CH0

Memo :

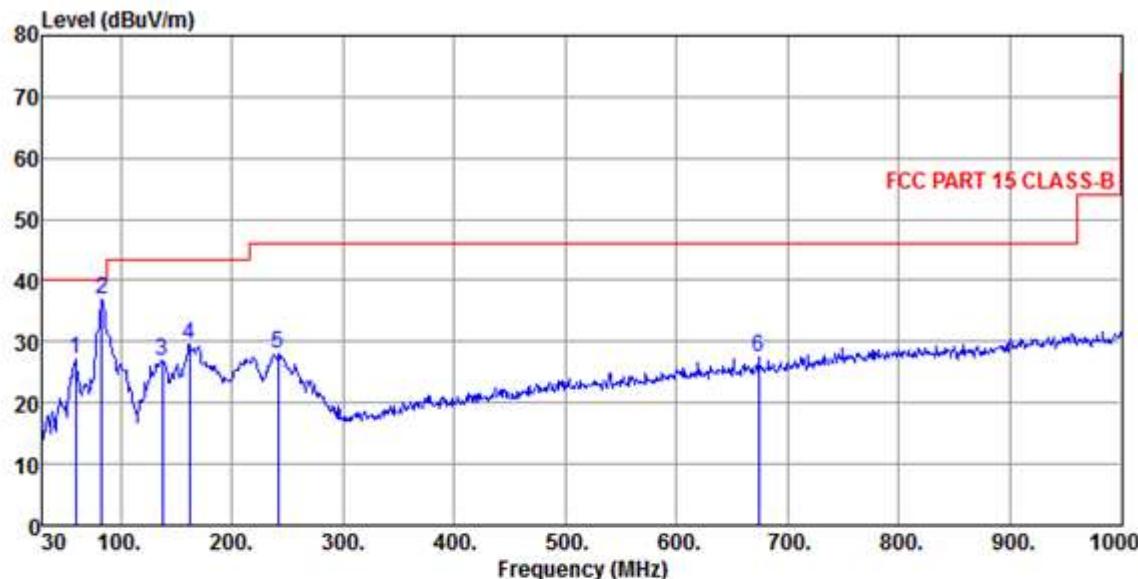
Freq	ReadAntenna MHz	Antenna Level dBuV	Cable Factor	Preamp Loss Factor	Preamp Level dB	Limit Line dBuV/m	Over Line dBuV/m	Over Limit dB	
								Limit	Over Remark
1	36.79	19.95	12.51	0.77	0.00	33.23	40.00	-6.77	Peak
2 pp	59.10	27.72	12.58	1.04	0.00	41.34	40.00	1.34	Peak
3 qp	59.38	23.60	12.58	1.04	0.00	37.22	40.00	-2.78	QP
4	82.38	24.59	8.73	1.09	0.00	34.41	40.00	-5.59	Peak
5	136.70	17.34	13.21	1.62	0.00	32.17	43.50	-11.33	Peak
6	240.49	12.69	11.71	2.12	0.00	26.52	46.00	-19.48	Peak
7	497.54	4.45	17.03	3.04	0.00	24.52	46.00	-21.48	Peak



Site : chamber  
Condition : FCC PART 15 CLASS-B 3m VULB9160 HORIZONTAL  
EUT :  
Model Name :  
Temp/Humi : 23 °C / 54 %  
Power Rating: AC 120V/60HZ  
Mode : 8DPSK CH0  
Memo :

	Freq	ReadAntenna		Cable Preamp		Limit Level	Line	Over Limit	Remark
		MHz	dBuV	Factor	Loss Factor				
1	59.10	14.15	12.58	1.04	0.00	27.77	40.00	-12.23	Peak
2 pp	83.35	27.89	8.68	1.09	0.00	37.66	40.00	-2.34	Peak
3	161.92	13.41	13.77	1.70	0.00	28.88	43.50	-14.62	Peak
4	248.25	17.60	11.88	2.15	0.00	31.63	46.00	-14.37	Peak
5	283.17	11.35	12.89	2.22	0.00	26.46	46.00	-19.54	Peak
6	680.87	3.64	19.89	3.58	0.00	27.11	46.00	-18.89	Peak

**BT 8-DPSK( traffic mode Channel 39)**



Site : chamber

Condition : FCC PART 15 CLASS-B 3m VULB9160 HORIZONTAL

EUT :

Model Name :

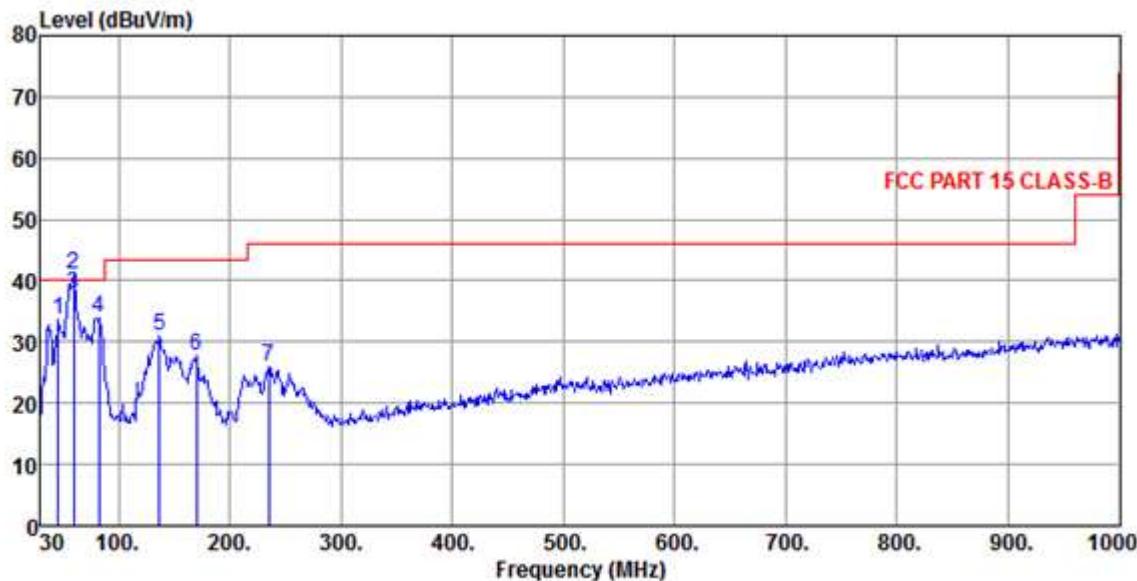
Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60HZ

Mode : 8DPSK CH39

Memo :

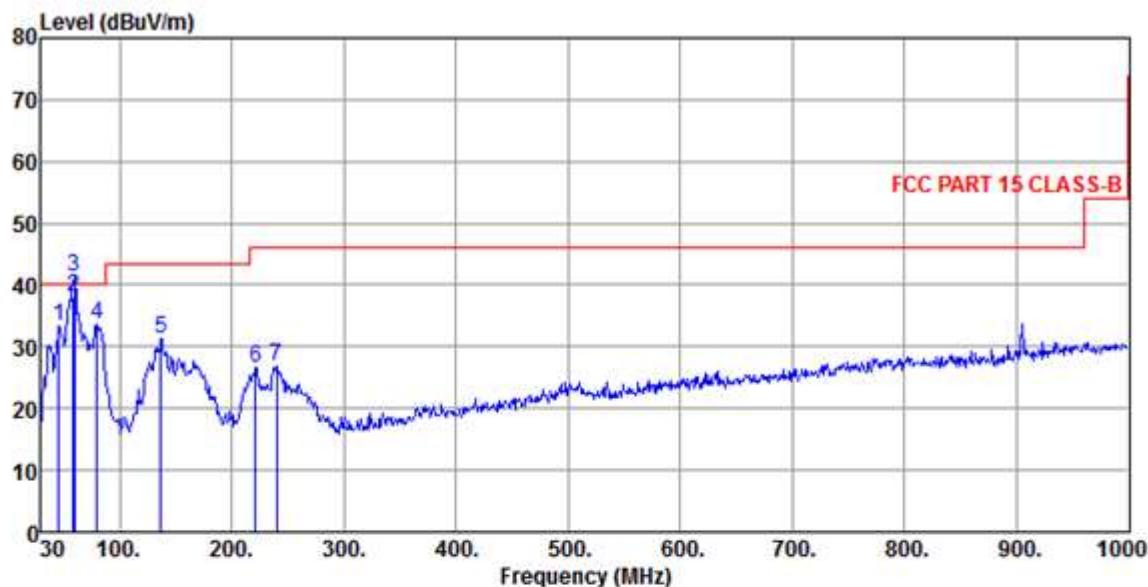
Freq	ReadAntenna		Cable Preamp		Limit Level	Over Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB				
1	59.10	13.56	12.58	1.04	0.00	27.18	40.00	-12.82 Peak
2 pp	83.35	27.27	8.68	1.09	0.00	37.04	40.00	-2.96 Peak
3	137.67	12.11	13.21	1.62	0.00	26.94	43.50	-16.56 Peak
4	161.92	14.01	13.77	1.70	0.00	29.48	43.50	-14.02 Peak
5	241.46	14.28	11.75	2.13	0.00	28.16	46.00	-17.84 Peak
6	674.08	4.16	19.82	3.56	0.00	27.54	46.00	-18.46 Peak



Site : chamber  
Condition : FCC PART 15 CLASS-B 3m VULB9160 VERTICAL  
EUT :  
Model Name :  
Temp/Humi : 23 °C / 54 %  
Power Rating: AC 120V/60HZ  
Mode : 8DPSK CH39  
Memo :

Freq	ReadAntenna		Cable Preamp		Limit Level	Line dBuV/m	Over Limit	Remark
	MHz	dBuV	dB/m	dB				
1	45.52	20.10	12.75	0.90	0.00	33.75	40.00	-6.25 Peak
2 pp	59.10	27.31	12.58	1.04	0.00	40.93	40.00	0.93 Peak
3 qp	59.10	24.12	12.58	1.04	0.00	37.74	40.00	-2.26 QP
4	82.38	24.04	8.73	1.09	0.00	33.86	40.00	-6.14 Peak
5	136.70	16.29	13.21	1.62	0.00	31.12	43.50	-12.38 Peak
6	169.68	12.47	13.33	1.84	0.00	27.64	43.50	-15.86 Peak
7	234.67	12.53	11.43	2.08	0.00	26.04	46.00	-19.96 Peak

**BT 8-DPSK( traffic mode Channel 78)**



Site : chamber

Condition : FCC PART 15 CLASS-B 3m VULB9160 VERTICAL

EUT :

Model Name :

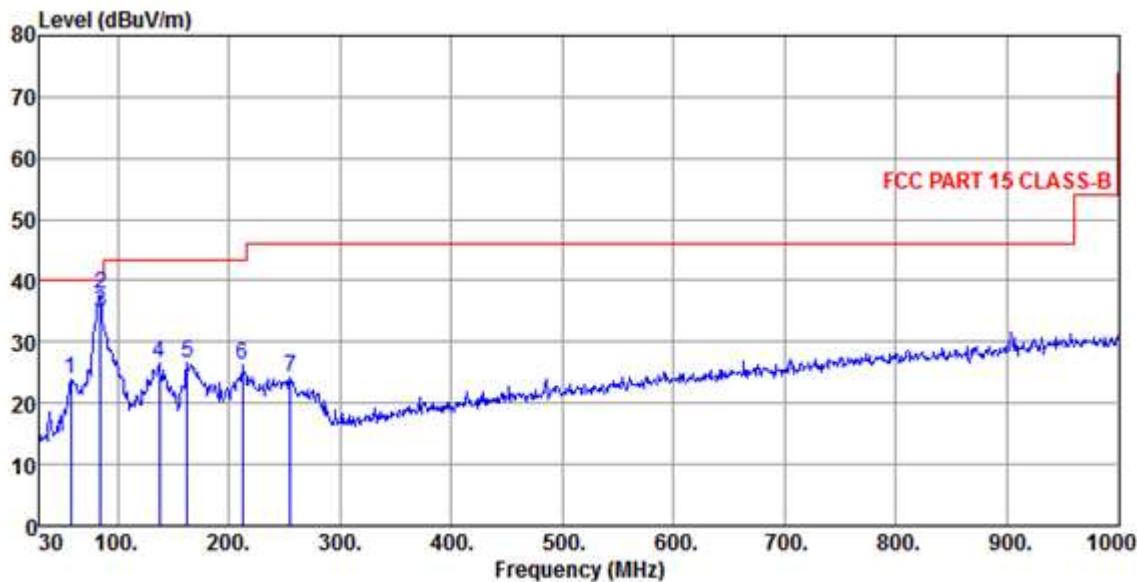
Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60HZ

Mode : 8DPSK CH78

Memo :

Freq	ReadAntenna		Cable Preamp		Limit Level	Over Line	Over Limit	Remark
	MHz	dBuV	Factor	Loss				
1	45.52	19.64	12.75	0.90	0.00	33.29	40.00	-6.71 Peak
2 qp	58.34	24.38	12.58	1.03	0.00	37.99	40.00	-2.01 QP
3 pp	59.10	27.65	12.58	1.04	0.00	41.27	40.00	1.27 Peak
4	79.47	23.68	8.77	1.09	0.00	33.54	40.00	-6.46 Peak
5	136.70	16.49	13.21	1.62	0.00	31.32	43.50	-12.18 Peak
6	221.09	13.83	10.76	2.11	0.00	26.70	46.00	-19.30 Peak
7	239.52	12.90	11.71	2.12	0.00	26.73	46.00	-19.27 Peak



Site : chamber  
Condition : FCC PART 15 CLASS-B 3m VULB9160 HORIZONTAL  
EUT :  
Model Name :  
Temp/Humi : 23 °C / 54 %  
Power Rating: AC 120V/60HZ  
Mode : 8DPSK CH78  
Memo :

Freq	ReadAntenna		Cable Preamp		Limit Level	Over Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB				
1	58.13	10.36	12.58	1.03	0.00	23.97	40.00	-16.03 Peak
2 pp	84.32	27.96	8.68	1.09	0.00	37.73	40.00	-2.27 Peak
3 qp	84.58	25.14	8.68	1.09	0.00	34.91	40.00	-5.09 QP
4	137.67	11.71	13.21	1.62	0.00	26.54	43.50	-16.96 Peak
5	162.89	11.33	13.66	1.72	0.00	26.71	43.50	-16.79 Peak
6	212.36	13.74	10.61	1.97	0.00	26.32	43.50	-17.18 Peak
7	255.04	9.97	12.00	2.17	0.00	24.14	46.00	-21.86 Peak

**From 1GHz to 25GHz:**

Only show the worst test data when EUT was operated on different mode.

EUT operation mode : BT GFSK(Ch0/Ch39/Ch78); BT Π /4-DQPSK(Ch0/Ch39/Ch78);  
BT 8-DPSK(Ch0/Ch39/Ch78)

**BT GFSK traffic mode Ch78**

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Antenna Polarity	Total (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
2480	97.11	-2.88	Horizontal	94.23	/	/	Peak
4960	38.03	5.23	H	43.26	74	30.74	Peak
7440	37.14	13.15	H	50.29	74	23.71	Peak
2480	90.25	-2.88	Vertical	87.37	/	/	Peak
4960	36.87	5.23	V	42.10	74	31.90	Peak
7440	37.00	12.85	V	49.85	74	24.15	Peak

Note: 1, Total=Reading+Correct factor

2, 2480 MHz was fundamental signal which can be ignored.

3, Average measurement was not performed if peak level were lower than the average limit.

4, Other harmonics are lower than background noise.

**BT Π/4-DQPSK traffic mode Ch39**

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Antenna Polarity	Total (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
2441	96.46	-3.29	Horizontal	93.17	/	/	Peak
4882	37.54	5.02	H	42.56	74	31.44	Peak
7322	38.02	11.86	H	49.88	74	24.12	Peak
2441	90.14	-3.29	Vertical	86.85	/	/	Peak
4882	36.65	5.02	V	41.67	74	32.33	Peak
7322	36.67	12.36	V	49.03	74	24.97	Peak

Note: 1, Total=Reading+Correct factor

2, 2441MHz was fundamental signal which can be ignored.

3, Average measurement was not performed if peak level were lower than the average limit.

4, Other harmonics are lower than background noise.

**BT 8-DPSK traffic mode Ch39**

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Antenna Polarity	Total (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector Type
2441	97.32	-3.29	Horizontal	94.03	/	/	Peak
4882	37.52	5.02	H	42.54	74	31.46	Peak
7322	39.61	11.86	H	51.47	74	22.53	Peak
2441	90.40	-3.29	Vertical	87.11	/	/	Peak
4882	36.27	5.02	V	41.29	74	32.71	Peak
7322	37.94	12.36	V	50.30	74	23.70	Peak

Note: 1, Total=Reading+Correct factor

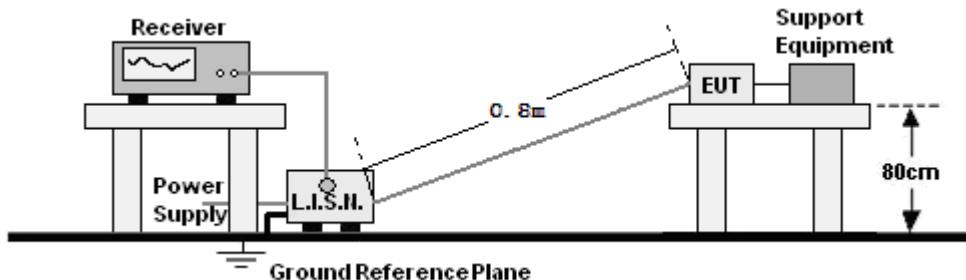
2, 2441MHz was fundamental signal which can be ignored.

3, Average measurement was not performed if peak level were lower than the average limit.

4, Other harmonics are lower than background noise.

## 12. AC POWER LINE CONDUCTED EMISSIONS

### 12.1 TEST SETUP



### 12.2 LIMITS

Frequency range (MHz)	Limits dB( $\mu$ V)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50

**NOTE:** 1. The lower limit shall apply at the transition frequencies.  
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz.

### 12.3 TEST PROCEDURE

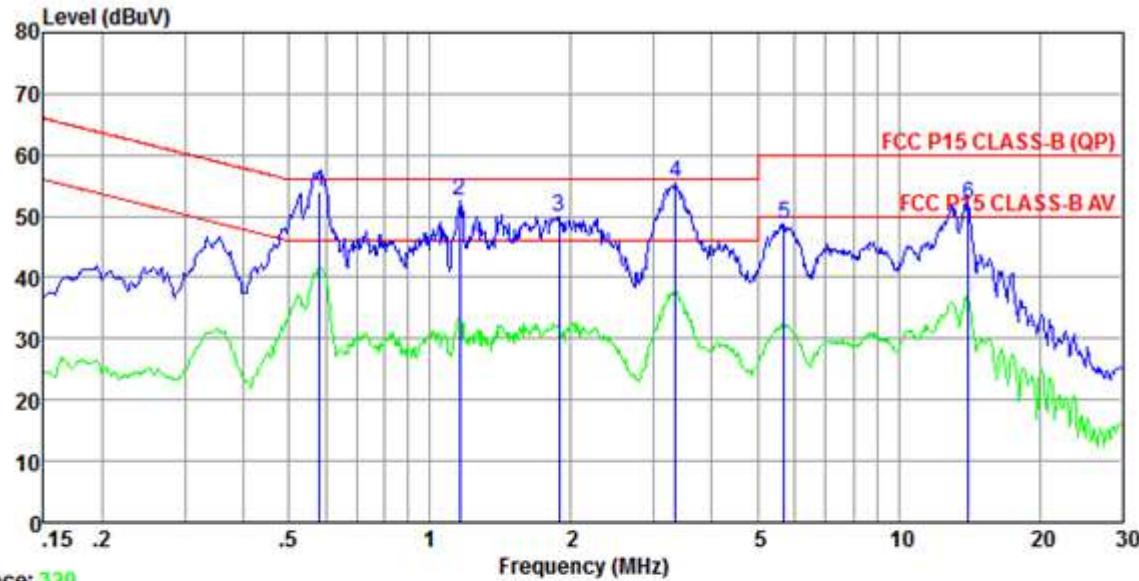
According to description of ANSI C63.4: 2009 sec.13.3, the AC power line preliminary conducted emissions measurements were carried out. The preliminary conducted measurements were performed using the spectrum analyzer to observe the emission characteristics of the EUT. The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions. These configurations were used for final AC power line conducted emissions measurements. The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The EUT is connected to LISN and LISN is connected to the reference ground. All other supplemental devices are connected with EUT through other LISN. The distance between EUT and LISN is 80cm. A radio link is established between EUT and the tester. The output power of the EUT is controlled by the tester and driven to maximum value. An initial pre-scan was performed on the live L line and neutral line with peak detector (9kHz RBW). Both average detector and quasi-peak detector are performed at the frequencies with maximized peak emission.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

## 12.4 RESULTS & PERFORMANCE

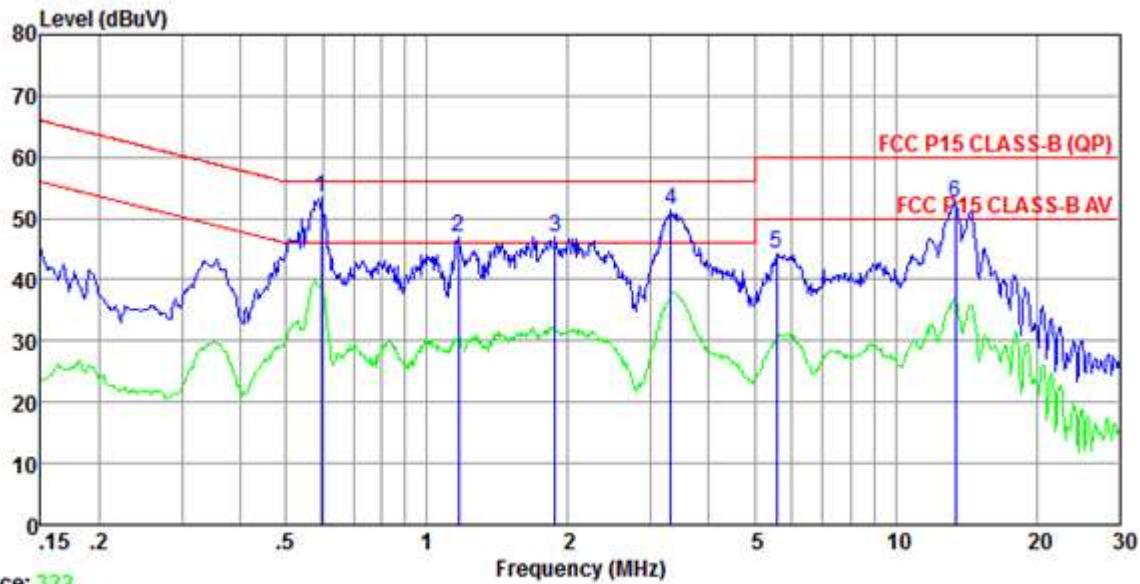
EUT was operated on different mode. EUT work mode: BT GFSK(CH0/39/78); BT Π/4-DQPSK(CH0/39/78); BT 8-DPSK(CH0/39/78)

### GFSK traffic mode Ch0



Site : chamber  
Condition : FCC P15 CLASS-B (QP) ENV216(N)-20120730 NEUTRAL  
EUT :  
Model Name :  
Temp/Humi : 23 °C / 54 %  
Power Rating: AC 120V/60HZ  
Mode : GFSK CH 0  
Memo :

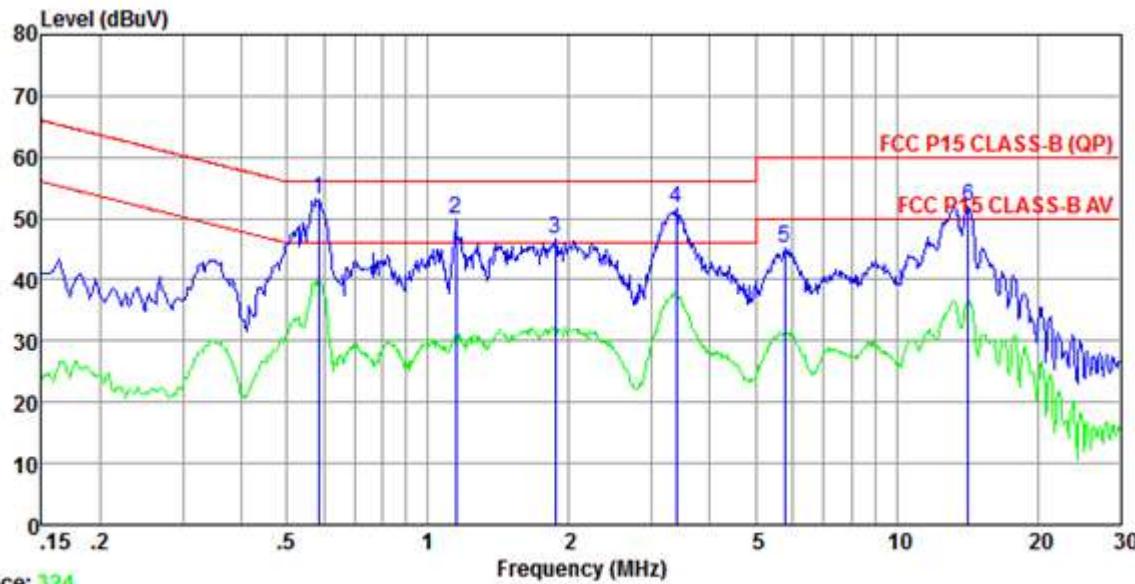
Freq	Read Level	LISN Factor	Cable Preamp		Limit Level	Line	Over Limit	Remark
			MHz	dBuV	dB	dB	dB	dB
1 qp	0.58	43.49	10.37	0.11	0.00	53.97	56.00	-2.03 QP
2	1.16	42.04	10.31	0.14	0.00	52.49	56.00	-3.51 Peak
3	1.89	39.45	10.31	0.15	0.00	49.91	56.00	-6.09 Peak
4 pp	3.35	44.93	10.32	0.15	0.00	55.40	56.00	-0.60 Peak
5	5.68	38.24	10.33	0.20	0.00	48.77	60.00	-11.23 Peak
6	14.06	41.36	10.53	0.19	0.00	52.08	60.00	-7.92 Peak



Site : chamber  
Condition : FCC P15 CLASS-B (QP) ENV216(L)-20120730 LINE  
EUT :  
Model Name :  
Temp/Humi : 23 °C / 54 %  
Power Rating: AC 120V/60HZ  
Mode : GFSK CH 0  
Memo :

Freq	Read	LISN	Cable	Preamp	Limit	Over	Limit	Remark
	MHz	dBuV	dB	dB				
1 pp	0.59	42.75	10.47	0.11	0.00	53.33	56.00	-2.67 Peak
2	1.17	36.37	10.52	0.14	0.00	47.03	56.00	-8.97 Peak
3	1.88	36.29	10.52	0.15	0.00	46.96	56.00	-9.04 Peak
4	3.31	40.68	10.52	0.15	0.00	51.35	56.00	-4.65 Peak
5	5.56	33.45	10.50	0.19	0.00	44.14	60.00	-15.86 Peak
6	13.41	41.93	10.49	0.25	0.00	52.67	60.00	-7.33 Peak

### GFSK traffic mode Ch39



Trace: 324

Site : chamber

Condition : FCC P15 CLASS-B (QP) ENV216(L)-20120730 LINE

EUT :

Model Name :

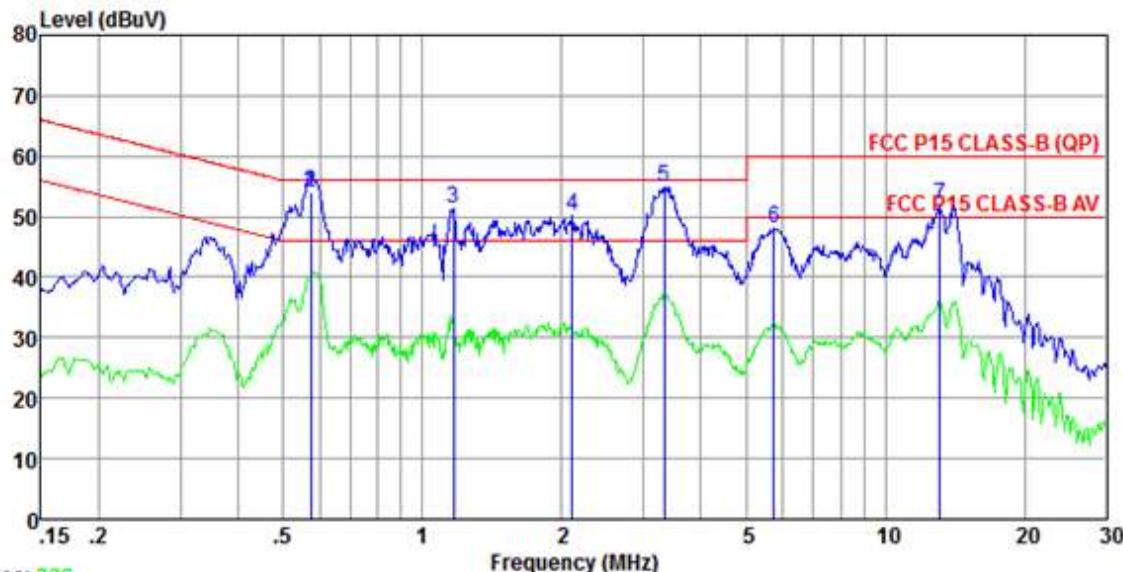
Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60HZ

Mode : GFSK CH 39

Memo :

	Read Freq	LISN Level	Cable Factor	Preamp Loss	Level Factor	Limit Level	Line Limit	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1 pp	0.59	42.58	10.48	0.11	0.00	53.17	56.00	-2.83	Peak
2	1.15	39.15	10.52	0.14	0.00	49.81	56.00	-6.19	Peak
3	1.87	35.91	10.52	0.15	0.00	46.58	56.00	-9.42	Peak
4	3.38	40.93	10.52	0.15	0.00	51.60	56.00	-4.40	Peak
5	5.77	34.40	10.50	0.21	0.00	45.11	60.00	-14.89	Peak
6	14.21	41.32	10.50	0.18	0.00	52.00	60.00	-8.00	Peak

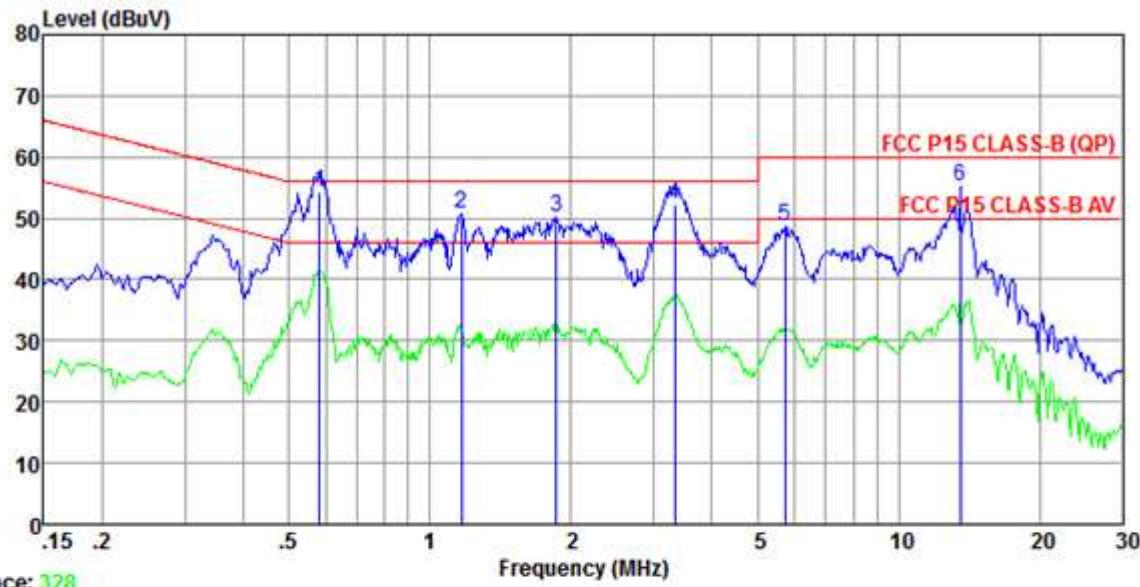


Trace: 326

Site : chamber  
Condition : FCC P15 CLASS-B (QP) ENV216(N)-20120730 NEUTRAL  
EUT :  
Model Name :  
Temp/Humi : 23 °C / 54 %  
Power Rating: AC 120V/60HZ  
Mode : GFSK CH 39  
Memo :

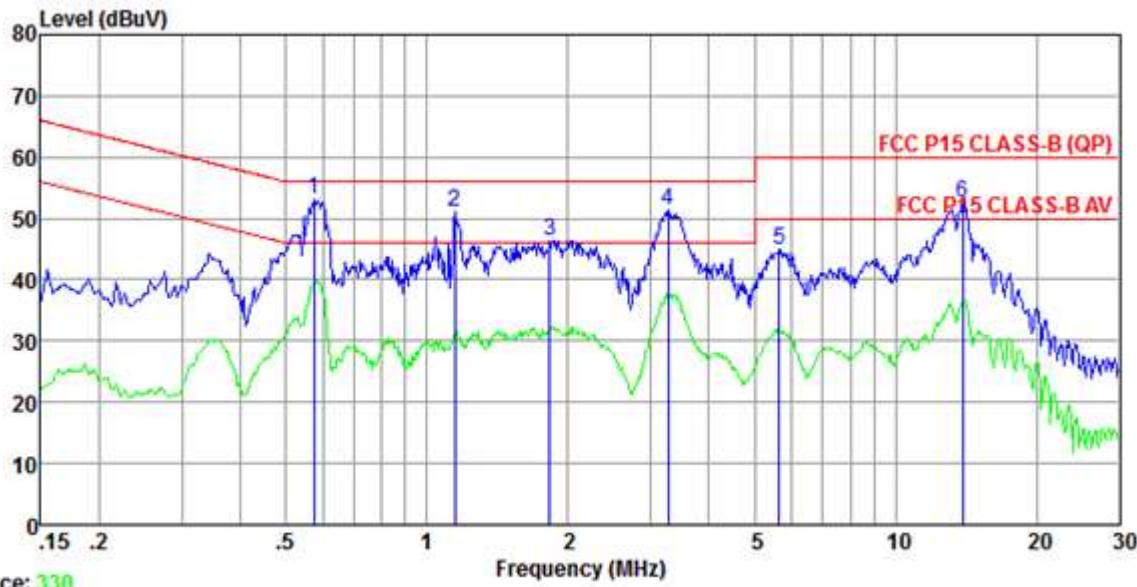
Freq	Read	LISN	Cable	Preamp	Limit	Over	Limit	Remark
	MHz	dBuV	dB	dB				
1	0.57	43.57	10.37	0.11	0.00	54.05	56.00	-1.95 Peak
2 qp	0.57	43.57	10.37	0.11	0.00	54.05	56.00	-1.95 QP
3	1.17	40.87	10.31	0.14	0.00	51.32	56.00	-4.68 Peak
4	2.11	39.64	10.31	0.15	0.00	50.10	56.00	-5.90 Peak
5 pp	3.33	44.57	10.32	0.15	0.00	55.04	56.00	-0.96 Peak
6	5.74	37.45	10.33	0.21	0.00	47.99	60.00	-12.01 Peak
7	13.13	41.22	10.50	0.28	0.00	52.00	60.00	-8.00 Peak

### GFSK traffic mode Ch78



Site : chamber  
Condition : FCC P15 CLASS-B (QP) ENV216(N)-20120730 NEUTRAL  
EUT :  
Model Name :  
Temp/Humi : 23 °C / 54 %  
Power Rating: AC 120V/60HZ  
Mode : GFSK CH 78  
Memo :

	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1 pp	0.58	43.74	10.37	0.11	0.00	54.22	56.00	-1.78	QP
2	1.17	40.38	10.31	0.14	0.00	50.83	56.00	-5.17	Peak
3	1.86	39.68	10.31	0.15	0.00	50.14	56.00	-5.86	Peak
4	3.33	41.75	10.32	0.15	0.00	52.22	56.00	-3.78	QP
5	5.71	38.10	10.33	0.20	0.00	48.63	60.00	-11.37	Peak
6 pk	13.55	44.38	10.51	0.24	0.00	55.13	60.00	-4.87	Peak



Site : chamber

Condition : FCC P15 CLASS-B (QP) ENV216(L)-20120730 LINE

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

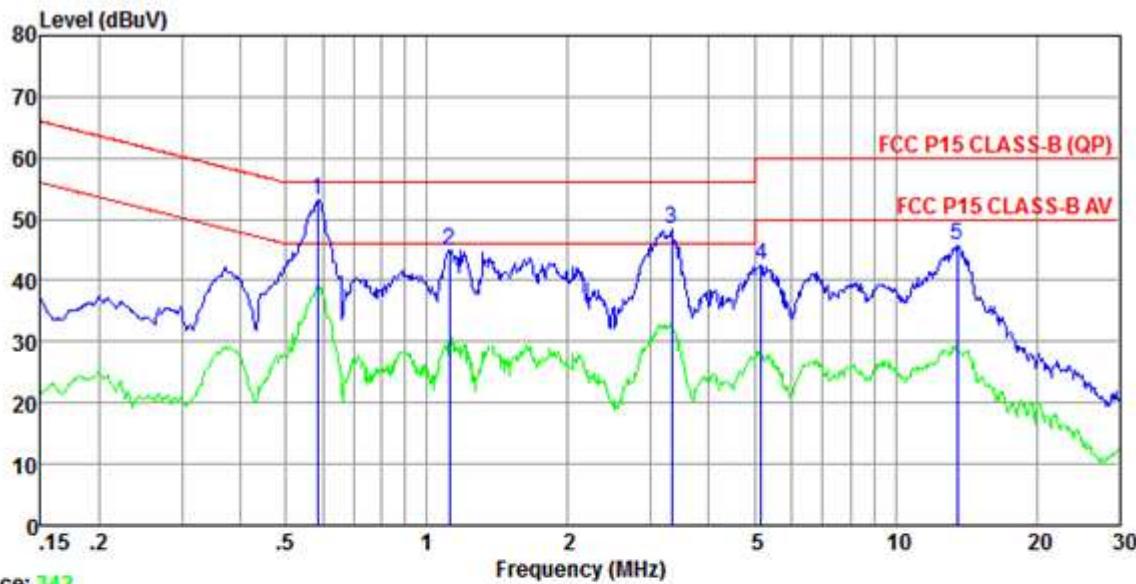
Power Rating: AC 120V/60HZ

Mode : GFSK CH 78

Memo :

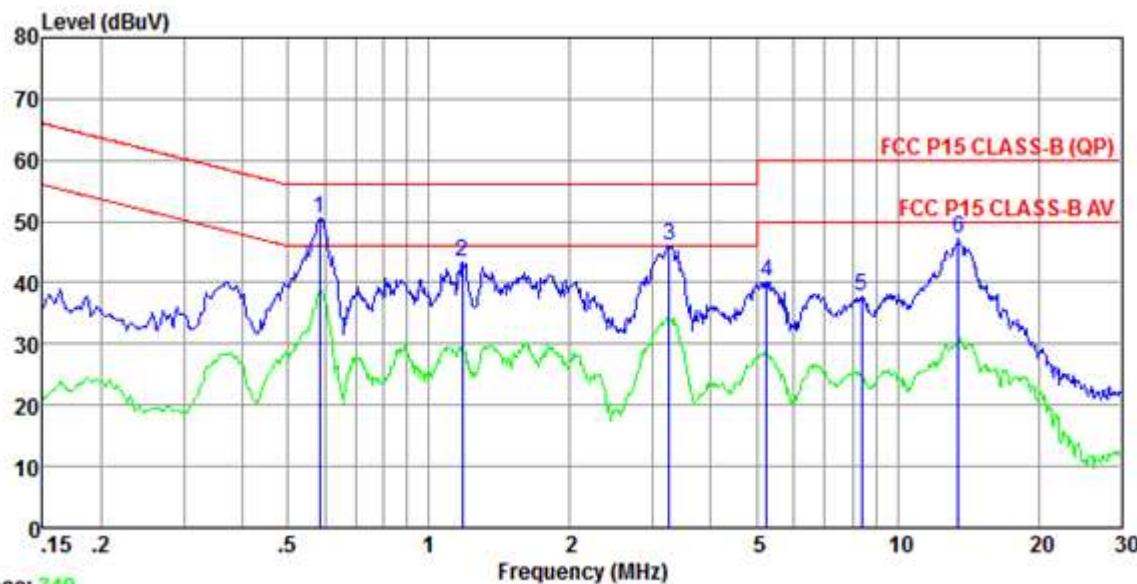
	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1 pp	0.57	42.56	10.49	0.11	0.00	53.16	56.00	-2.84	Peak
2	1.15	40.48	10.52	0.14	0.00	51.14	56.00	-4.86	Peak
3	1.83	35.81	10.52	0.15	0.00	46.48	56.00	-9.52	Peak
4	3.28	40.57	10.52	0.15	0.00	51.24	56.00	-4.76	Peak
5	5.65	34.09	10.50	0.20	0.00	44.79	60.00	-15.21	Peak
6	13.91	41.96	10.50	0.20	0.00	52.66	60.00	-7.34	Peak

Π /4-DQPSK traffic mode Ch0



Site : chamber  
Condition : FCC P15 CLASS-B (QP) ENV216(N)-20120730 NEUTRAL  
EUT :  
Model Name :  
Temp/Humi : 23 °C / 54 %  
Power Rating: AC 120V/60HZ  
Mode : Π/4-DQPSK CH 0  
Memo :

Freq	Read	LISN	Cable	Preamp	Limit	Over	Remark
	Freq	Level	Factor	Loss			
1 pp	0.59	42.72	10.36	0.11	0.00	53.19	56.00 -2.81 Peak
2	1.12	34.54	10.31	0.14	0.00	44.99	56.00 -11.01 Peak
3	3.33	37.86	10.32	0.15	0.00	48.33	56.00 -7.67 Peak
4	5.17	32.04	10.32	0.16	0.00	42.52	60.00 -17.48 Peak
5	13.55	34.89	10.51	0.24	0.00	45.64	60.00 -14.36 Peak



Trace: 340

Site : chamber

Condition : FCC P15 CLASS-B (QP) ENV216(L)-20120730 LINE

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

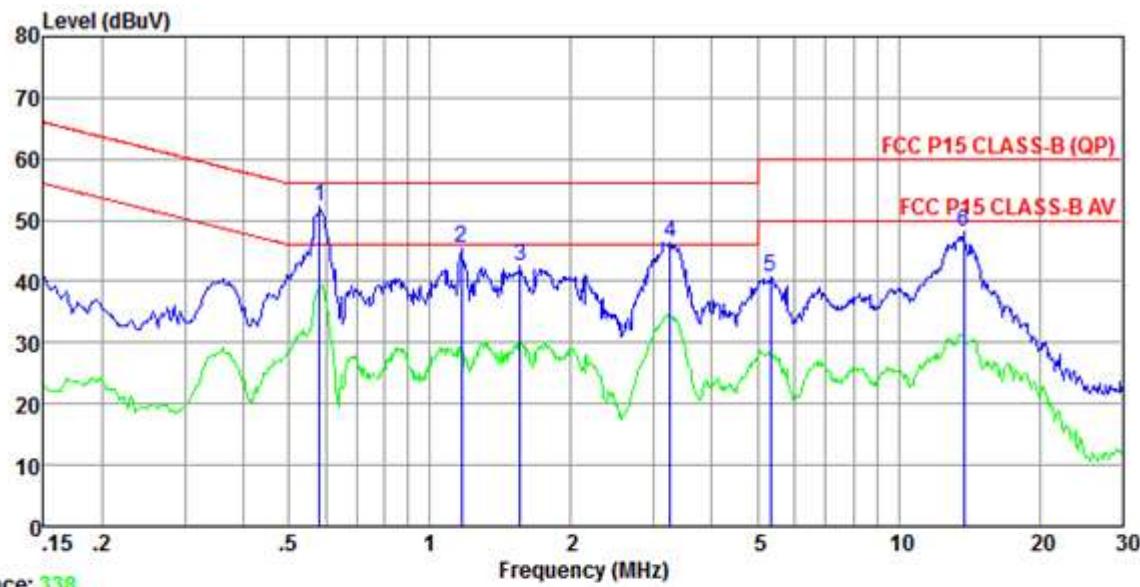
Power Rating: AC 120V/60HZ

Mode :  $\pi/4$ -DQPSK CH 0

Memo :

Freq	Read	LISN	Cable	Preamp	Limit	Over	Remark
	Level	Factor	Loss	Factor			
	MHz	dBuV	dB	dB	dBuV	dBuV	dB
1 pp	0.59	39.95	10.48	0.11	0.00	50.54	56.00 -5.46 Peak
2	1.18	32.82	10.52	0.14	0.00	43.48	56.00 -12.52 Peak
3	3.26	35.45	10.52	0.15	0.00	46.12	56.00 -9.88 Peak
4	5.25	29.62	10.51	0.16	0.00	40.29	60.00 -19.71 Peak
5	8.37	27.18	10.43	0.28	0.00	37.89	60.00 -22.11 Peak
6	13.48	36.53	10.49	0.25	0.00	47.27	60.00 -12.73 Peak

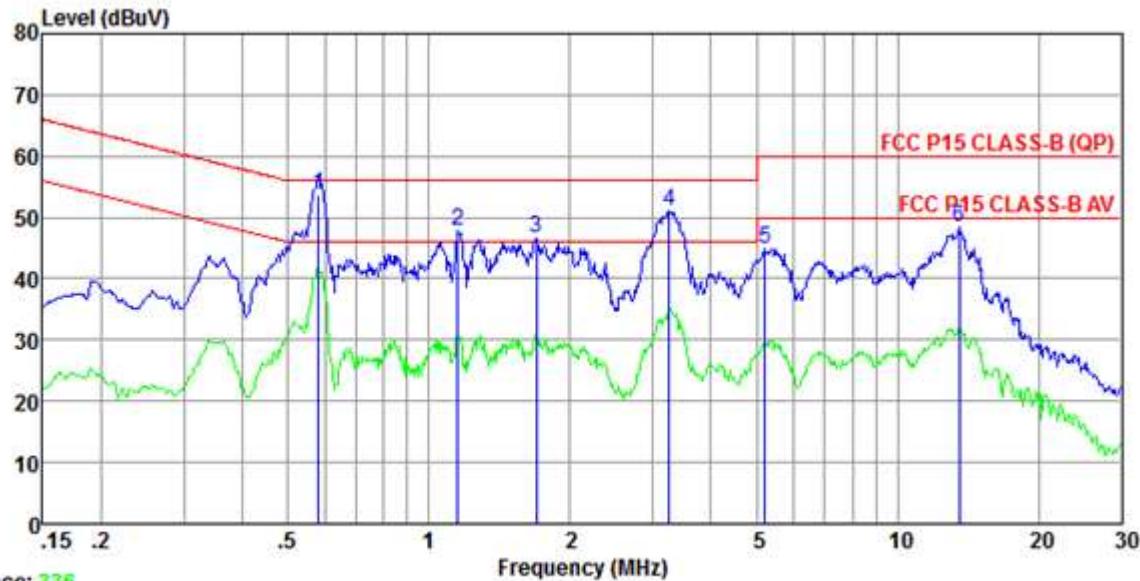
□ /4-DQPSK traffic mode Ch39



Trace: 338

Site : chamber  
Condition : FCC P15 CLASS-B (QP) ENV216(L)-20120730 LINE  
EUT :  
Model Name :  
Temp/Humi : 23 °C / 54 %  
Power Rating: AC 120V/60HZ  
Mode :  $\pi/4$ -DQPSK CH39  
Memo :

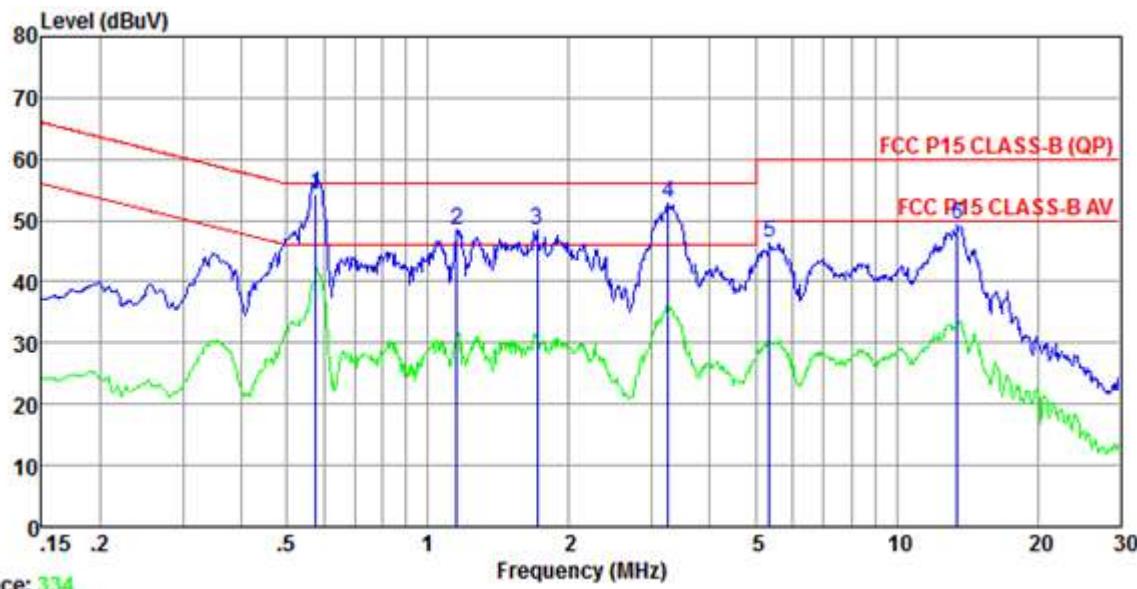
Freq	Read	LISN	Cable	Preamp	Limit	Over	Remark
	Level	Factor	Loss	Factor			
	MHz	dBuV	dB	dB	dBuV	dBuV	dB
1 pp	0.58	41.66	10.48	0.11	0.00	52.25	56.00 -3.75 Peak
2	1.17	34.81	10.52	0.14	0.00	45.47	56.00 -10.53 Peak
3	1.56	31.84	10.52	0.15	0.00	42.51	56.00 -13.49 Peak
4	3.26	35.78	10.52	0.15	0.00	46.45	56.00 -9.55 Peak
5	5.33	30.03	10.51	0.17	0.00	40.71	60.00 -19.29 Peak
6	13.77	37.37	10.49	0.22	0.00	48.08	60.00 -11.92 Peak



Trace: 336  
Site : chamber  
Condition : FCC P15 CLASS-B (QP) ENV216(N)-20120730 NEUTRAL  
EUT :  
Model Name :  
Temp/Humi : 23 °C / 54 %  
Power Rating: AC 120V/60HZ  
Mode :  $\pi/4$ -DQPSK CH39  
Memo :

Freq	Read	LISN	Cable	Preamp	Limit	Over	Limit	Remark
	MHz	dBuV	dB	dB				
1 pp	0.58	43.13	10.37	0.11	0.00	53.61	56.00	-2.39 QP
2	1.15	37.37	10.31	0.14	0.00	47.82	56.00	-8.18 Peak
3	1.70	36.18	10.31	0.15	0.00	46.64	56.00	-9.36 Peak
4 pk	3.26	40.65	10.32	0.15	0.00	51.12	56.00	-4.88 Peak
5	5.22	34.29	10.32	0.16	0.00	44.77	60.00	-15.23 Peak
6	13.55	37.53	10.51	0.24	0.00	48.28	60.00	-11.72 Peak

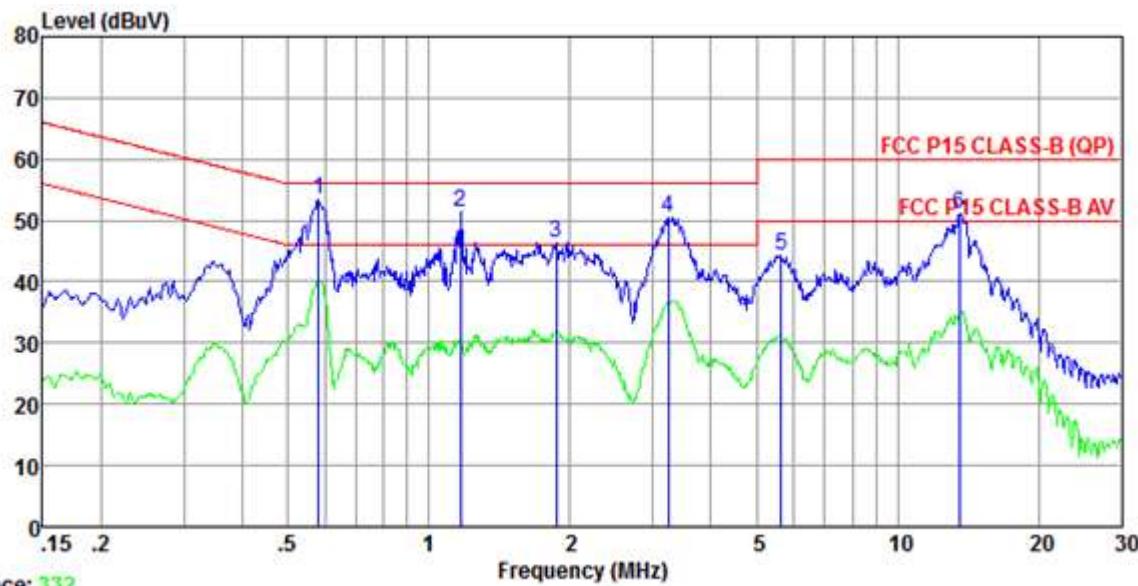
□ /4-DQPSK traffic mode Ch78



Trace: 334

Site : chamber  
Condition : FCC P15 CLASS-B (QP) ENV216(N)-20120730 NEUTRAL  
EUT :  
Model Name :  
Temp/Humi : 23 °C / 54 %  
Power Rating: AC 120V/60HZ  
Mode : π/4-DQPSK CH78  
Memo :

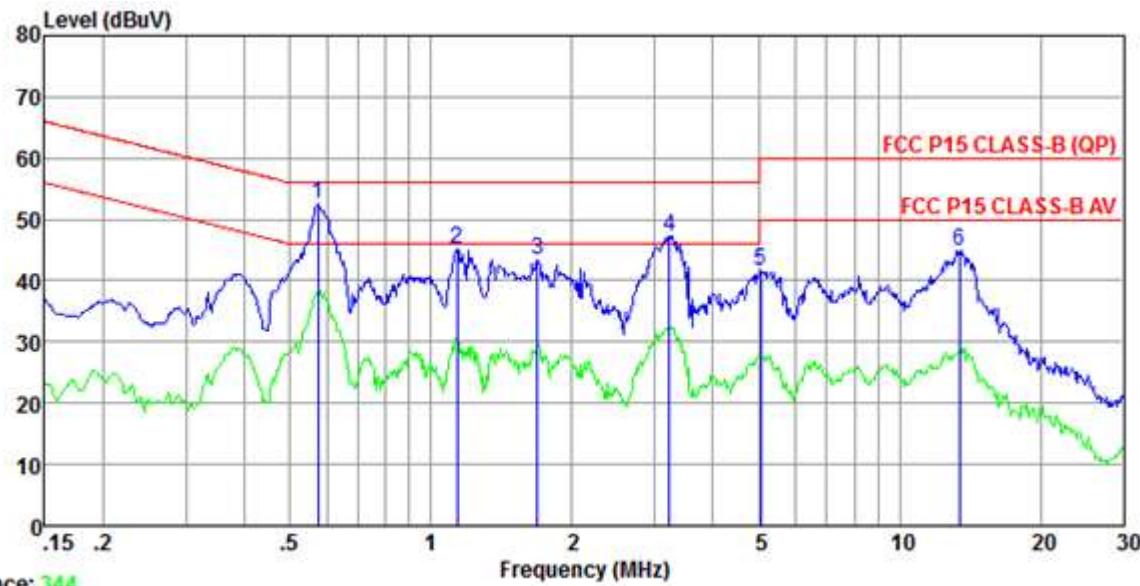
Freq	Read	LISN	Cable	Preamp	Limit	Over	Remark	
	Level	Factor	Loss	Factor				
MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1 pp	0.58	43.78	10.37	0.11	0.00	54.26	56.00	-1.74 QP
2	1.15	38.07	10.31	0.14	0.00	48.52	56.00	-7.48 Peak
3	1.71	37.86	10.31	0.15	0.00	48.32	56.00	-7.68 Peak
4 pk	3.26	42.30	10.32	0.15	0.00	52.77	56.00	-3.23 Peak
5	5.36	35.88	10.32	0.17	0.00	46.37	60.00	-13.63 Peak
6	13.48	38.42	10.51	0.25	0.00	49.18	60.00	-10.82 Peak



Site : chamber  
Condition : FCC P15 CLASS-B (QP) ENV216(L)-20120730 LINE  
EUT :  
Model Name :  
Temp/Humi : 23 °C / 54 %  
Power Rating: AC 120V/60HZ  
Mode : π/4-DQPSK CH78  
Memo :

Freq	Read	LISN	Cable	Preamp	Limit	Over	Limit	Remark
	MHz	dBuV	Factor	Loss	Factor			
1 pp	0.58	42.89	10.48	0.11	0.00	53.48	56.00	-2.52 Peak
2	1.17	40.60	10.52	0.14	0.00	51.26	56.00	-4.74 Peak
3	1.87	35.71	10.52	0.15	0.00	46.38	56.00	-9.62 Peak
4	3.24	39.92	10.52	0.15	0.00	50.59	56.00	-5.41 Peak
5	5.65	33.63	10.50	0.20	0.00	44.33	60.00	-15.67 Peak
6	13.55	40.44	10.49	0.24	0.00	51.17	60.00	-8.83 Peak

### 8-DPSK traffic mode Ch0



Site : chamber  
Condition : FCC P15 CLASS-B (QP) ENV216(N)-20120730 NEUTRAL

EUT :

Model Name :

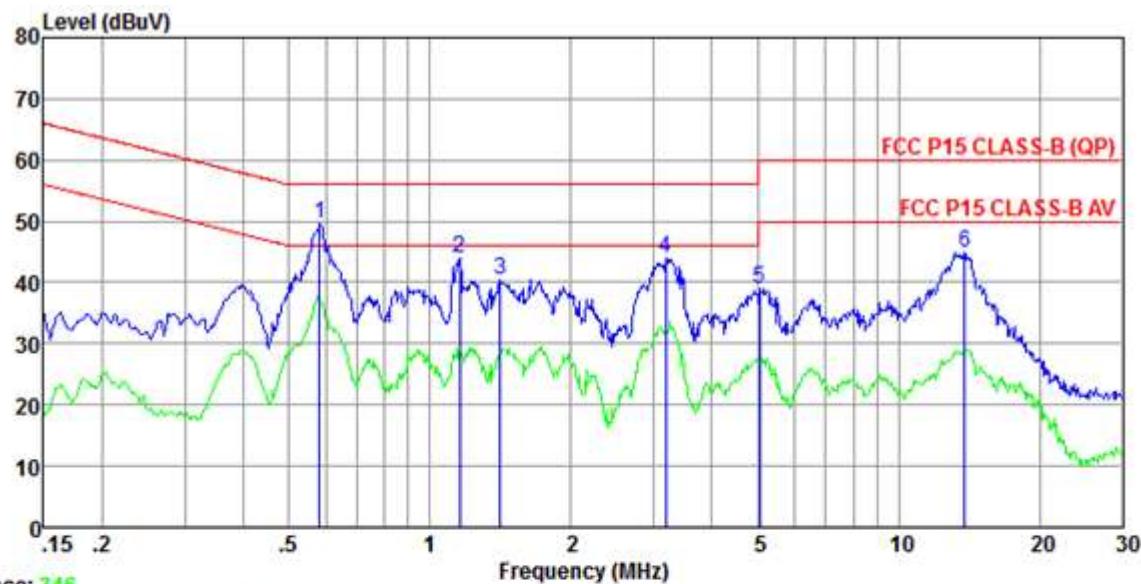
Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60HZ

Mode : 8-DPSK CH 0

Memo :

Freq	Read	LISN	Cable	Preamp	Level	Limit	Over	Remark
	MHz	dBuV	dB	dB		dBuV	dBuV	
1 pp	0.57	42.07	10.37	0.11	0.00	52.55	56.00	-3.45 Peak
2	1.14	34.84	10.31	0.14	0.00	45.29	56.00	-10.71 Peak
3	1.69	32.91	10.31	0.15	0.00	43.37	56.00	-12.63 Peak
4	3.22	36.86	10.32	0.15	0.00	47.33	56.00	-8.67 Peak
5	5.06	31.18	10.32	0.15	0.00	41.65	60.00	-18.35 Peak
6	13.41	34.14	10.51	0.25	0.00	44.90	60.00	-15.10 Peak



Site : chamber  
Condition : FCC P15 CLASS-B (QP) ENV216(L)-20120730 LINE

EUT :

Model Name :

Temp/Humi : 23 °C / 54 %

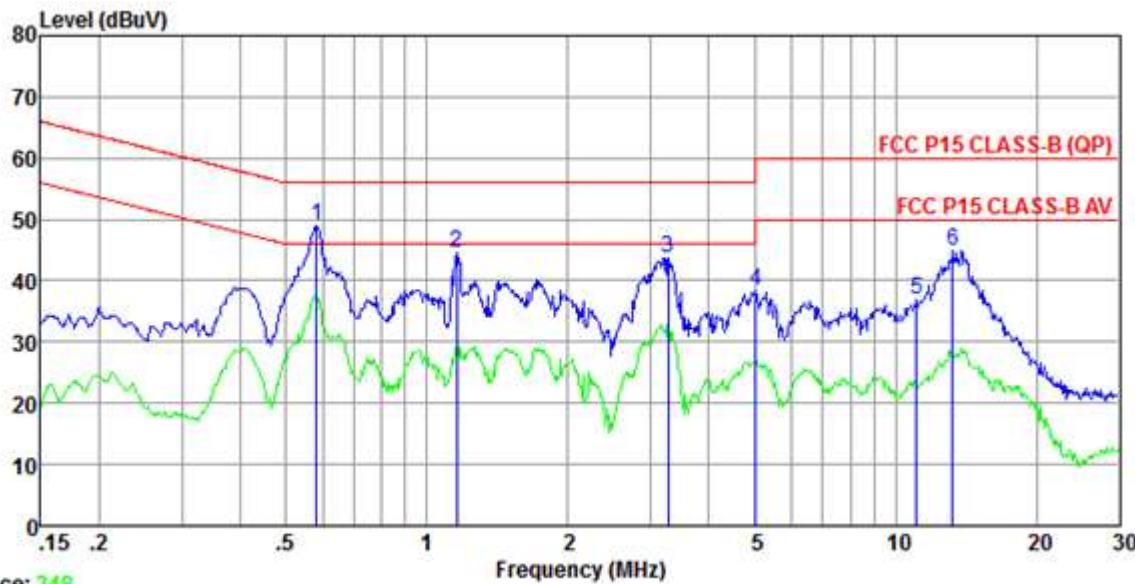
Power Rating: AC 120V/60HZ

Mode : 8-DPSK CH 0

Memo :

Freq	Read	LISN	Cable	Preamp	Limit	Over	Over	
	Level	Factor	Loss	Factor				Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1 pp	0.58	38.96	10.48	0.11	0.00	49.55	56.00	-6.45 Peak
2	1.16	33.40	10.52	0.14	0.00	44.06	56.00	-11.94 Peak
3	1.41	29.83	10.52	0.14	0.00	40.49	56.00	-15.51 Peak
4	3.19	33.44	10.52	0.15	0.00	44.11	56.00	-11.89 Peak
5	5.06	28.35	10.52	0.15	0.00	39.02	60.00	-20.98 Peak
6	13.84	34.09	10.50	0.21	0.00	44.80	60.00	-15.20 Peak

### 8-DPSK traffic mode Ch39



Trace: 348

Site : chamber

Condition : FCC P15 CLASS-B (QP) ENV216(L)-20120730 LINE

EUT :

Model Name :

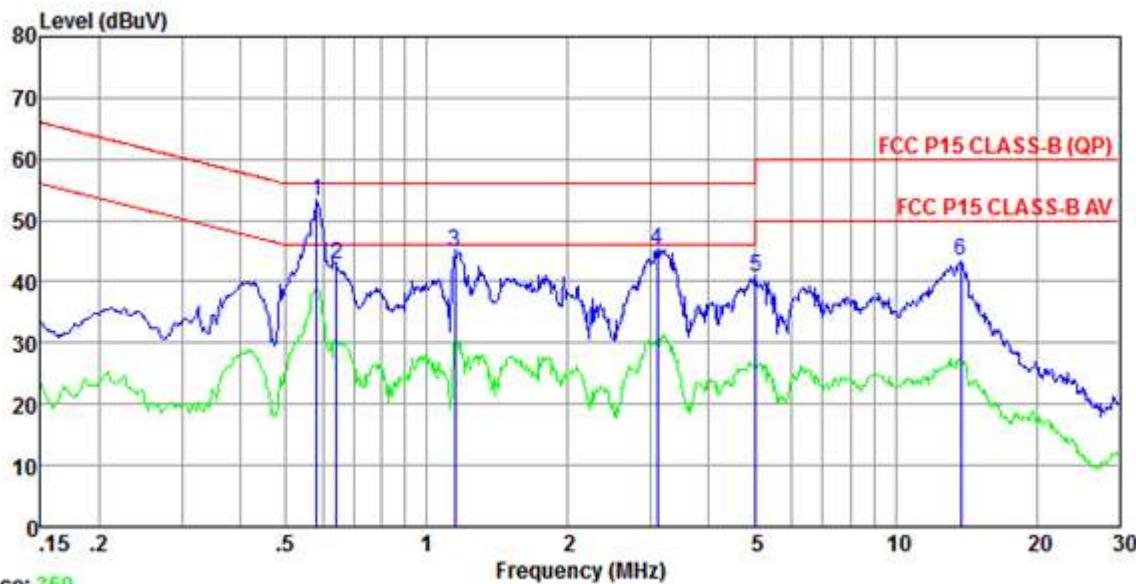
Temp/Humi : 23 °C / 54 %

Power Rating: AC 120V/60HZ

Mode : 8-DPSK CH 39

Memo :

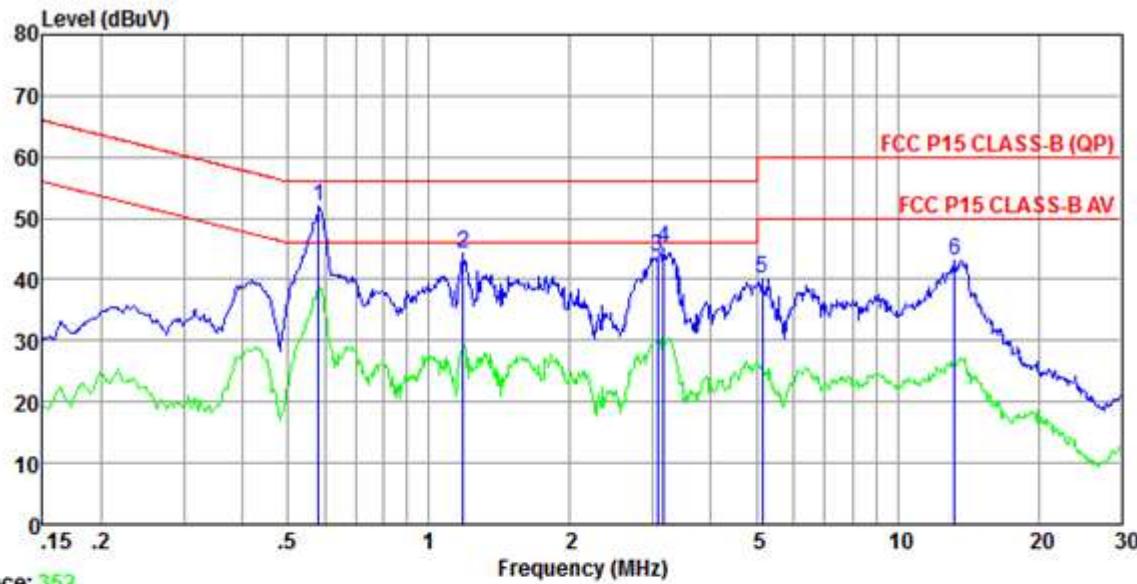
Freq	Read Level	LISN Factor	Cable Preamp		Limit Level	Limit Line	Over Limit	Remark
			MHz	dBuV	dB	dB	dB	dB
1 pp	0.58	38.48	10.48	0.11	0.00	49.07	56.00	-6.93 Peak
2	1.16	33.98	10.52	0.14	0.00	44.64	56.00	-11.36 Peak
3	3.28	33.14	10.52	0.15	0.00	43.81	56.00	-12.19 Peak
4	5.03	27.85	10.52	0.14	0.00	38.51	60.00	-21.49 Peak
5	11.08	26.26	10.43	0.32	0.00	37.01	60.00	-22.99 Peak
6	13.27	34.14	10.48	0.27	0.00	44.89	60.00	-15.11 Peak



Site : chamber  
Condition : FCC P15 CLASS-B (QP) ENV216(N)-20120730 NEUTRAL  
EUT :  
Model Name :  
Temp/Humi : 23 °C / 54 %  
Power Rating: AC 120V/60HZ  
Mode : 8-DPSK CH 39  
Memo :

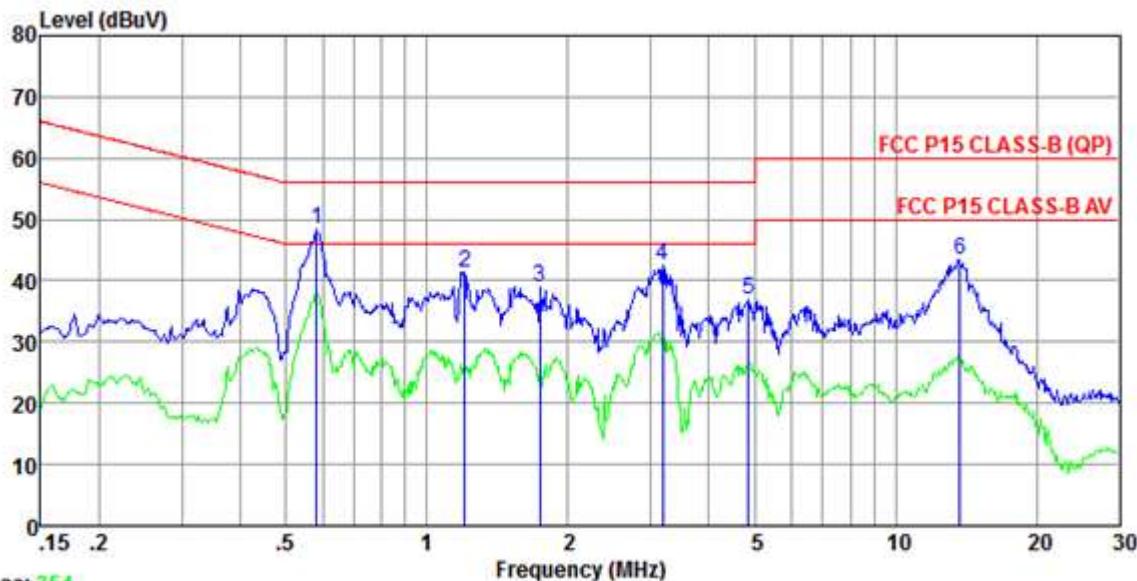
Freq	Read Level	LISN Factor	Cable Preamp		Limit Level	Line	Over Limit	Remark
			MHz	dBuV	dB	dB	dB	
1 pp	0.58	42.72	10.37	0.11	0.00	53.20	56.00	-2.80 Peak
2	0.64	32.42	10.33	0.11	0.00	42.86	56.00	-13.14 Peak
3	1.15	34.39	10.31	0.14	0.00	44.84	56.00	-11.16 Peak
4	3.11	34.77	10.32	0.15	0.00	45.24	56.00	-10.76 Peak
5	5.03	30.34	10.32	0.14	0.00	40.80	60.00	-19.20 Peak
6	13.77	32.57	10.52	0.22	0.00	43.31	60.00	-16.69 Peak

### 8-DPSK traffic mode Ch78



Site : chamber  
Condition : FCC P15 CLASS-B (QP) ENV216(N)-20120730 NEUTRAL  
EUT :  
Model Name :  
Temp/Humi : 23 °C / 54 %  
Power Rating: AC 120V/60HZ  
Mode : 8-DPSK CH 78  
Memo :

Freq	Read Level	LISN Factor	Cable Preamp		Limit Level	Limit Line	Over Limit	Remark
			MHz	dBuV	dB	dB	dB	Remark
1 pp	0.58	41.34	10.37	0.11	0.00	51.82	56.00	-4.18 Peak
2	1.18	33.71	10.31	0.14	0.00	44.16	56.00	-11.84 Peak
3	3.07	33.32	10.32	0.15	0.00	43.79	56.00	-12.21 Peak
4	3.17	34.69	10.32	0.15	0.00	45.16	56.00	-10.84 Peak
5	5.14	29.62	10.32	0.15	0.00	40.09	60.00	-19.91 Peak
6	13.27	32.45	10.50	0.27	0.00	43.22	60.00	-16.78 Peak



Site : chamber  
Condition : FCC P15 CLASS-B (QP) ENV216(L)-20120730 LINE  
EUT :  
Model Name :  
Temp/Humi : 23 °C / 54 %  
Power Rating: AC 120V/60HZ  
Mode : 8-DPSK CH 78  
Memo :

Freq	Read MHz	LISN Level dBuV	Cable Preamp		Limit Level dBuV	Limit Line dBuV	Over Limit dB	Remark
			Factor	Loss Factor				
1 pp	0.58	37.74	10.48	0.11	0.00	48.33	56.00	-7.67 Peak
2	1.20	30.75	10.52	0.14	0.00	41.41	56.00	-14.59 Peak
3	1.74	28.35	10.52	0.15	0.00	39.02	56.00	-16.98 Peak
4	3.19	31.85	10.52	0.15	0.00	42.52	56.00	-13.48 Peak
5	4.85	26.15	10.52	0.14	0.00	36.81	56.00	-19.19 Peak
6	13.70	32.76	10.49	0.23	0.00	43.48	60.00	-16.52 Peak

## **APPENDIX 1 PHOTOGRAHPS OF TEST SETUP**

Please refer to the file named “Part 15C Setup Photos”.

## **APPENDIX 2 PHOTOGRAHPS OF EUT**

Please refer to the files named “EUT External Photos” and “EUT Internal Photos”.

----End of the report----