

**Underwriters Laboratories Taiwan Co., Ltd.**

Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

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Doc No: 17-EM-F0876 / 6.0



Test report No. : 4790042400-US-R4-V0  
Page : 68 of 88  
Issued date : 2022/1/21  
FCC ID : RYK-WNFQ268AXB

### Below 1 GHz

Mode	GFSK	Channel	78
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Polarization	Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal		99.84	41.86	-16.45	25.41	43.5	-18.09	PK
		165.8	39.41	-11.13	28.28	43.5	-15.22	PK
		199.75	49.84	-13.91	35.93	43.5	-7.57	PK
		261.83	45.82	-11.35	34.47	46	-11.53	PK
		298.69	45.31	-9.99	35.32	46	-10.68	PK
		498.51	36.37	-4.79	31.58	46	-14.42	PK
Vertical		32.91	38.68	-12.4	26.28	40	-13.72	PK
		165.8	36.66	-11.13	25.53	43.5	-17.97	PK
		365.62	34.64	-7.98	26.66	46	-19.34	PK
		433.52	35.26	-6.17	29.09	46	-16.91	PK
		482.02	36.8	-5.1	31.7	46	-14.3	PK
		697.36	34.74	-0.45	34.29	46	-11.71	PK

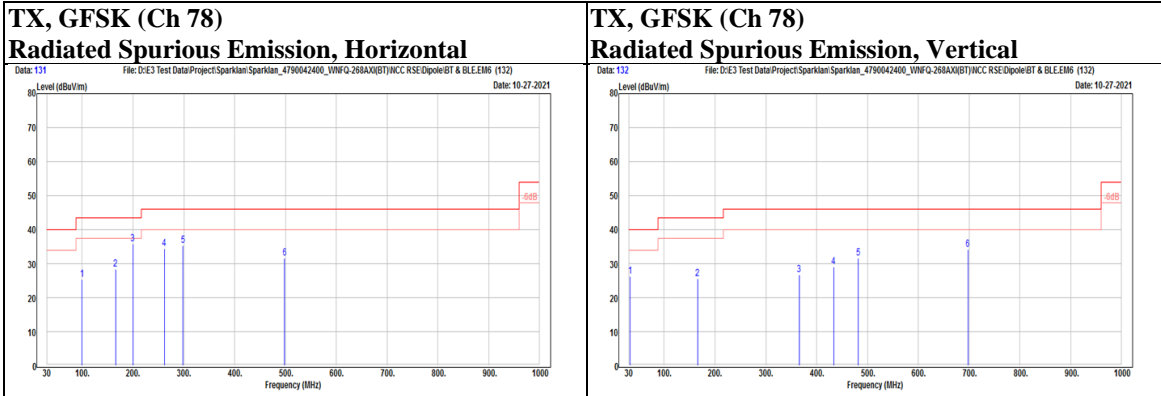
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**PIFA (Model: AD-502AX)**

**Above 1 GHz**

Mode	GFSK	Channel	0
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Polarization	Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal		2325.2	35.93	6.13	42.06	54	-11.94	AVG
		2341.16	40.34	6.06	46.4	74	-27.6	PK
	@	2402	95.73	6.13	101.86	N/A	N/A	PK
	@	2402	95.3	6.13	101.43	N/A	N/A	AVG
	*	4804	35.98	2.46	38.44	74	-35.56	PK
Vertical		2325.2	33.85	6.13	39.98	54	-14.02	AVG
		2325.39	41.22	6.13	47.35	74	-26.65	PK
	@	2402	96.91	6.13	103.04	N/A	N/A	PK
	@	2402	95.98	6.13	102.11	N/A	N/A	AVG
	*	4804	36.88	2.46	39.34	74	-34.66	PK

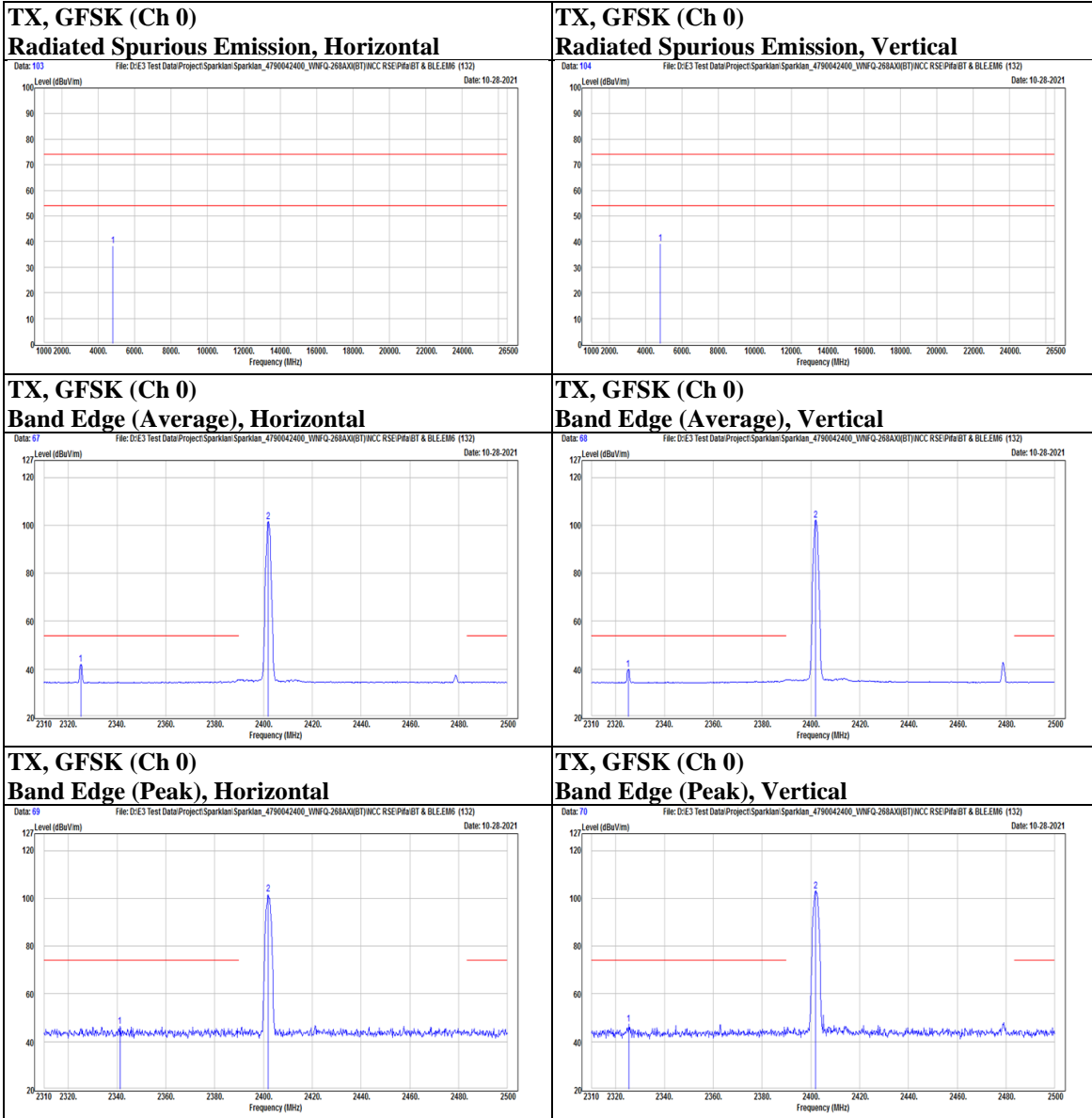
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Mode	GFSK	Channel	39
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Polarization	Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal		2363.58	40.73	6.06	46.79	74	-27.21	PK
		2364.34	36.23	6.06	42.29	54	-11.71	AVG
	@	2441	92.96	6.11	99.07	N/A	N/A	PK
	@	2441	92.4	6.11	98.51	N/A	N/A	AVG
		2484.8	28.66	6.1	34.76	54	-19.24	AVG
		2496.2	39.54	6.1	45.64	74	-28.36	PK
	*	4882	36.59	2.66	39.25	74	-34.75	PK
Vertical		2364.15	34.97	6.06	41.03	54	-12.97	AVG
		2364.72	40.69	6.06	46.75	74	-27.25	PK
	@	2441	97.88	6.11	103.99	N/A	N/A	PK
	@	2441	97.49	6.11	103.6	N/A	N/A	AVG
		2490.5	28.7	6.1	34.8	54	-19.2	AVG
		2497.91	39.47	6.1	45.57	74	-28.43	PK
	*	4882	36.94	2.66	39.6	74	-34.4	PK

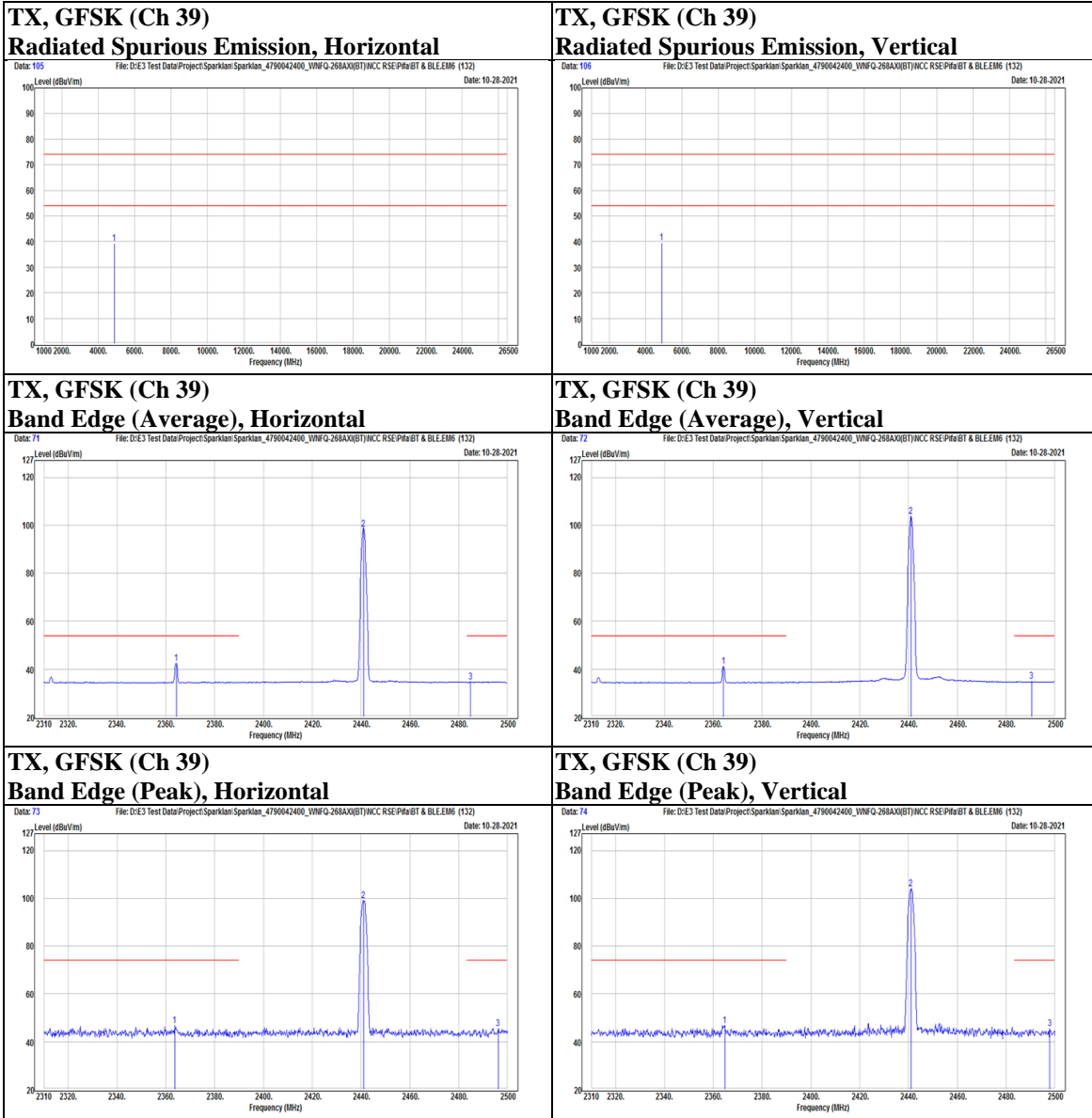
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Mode	GFSK	Channel	78
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Polarization	Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	@	2480	92.02	6.1	98.12	N/A	N/A	PK
	@	2480	90.76	6.1	96.86	N/A	N/A	AVG
		2488.98	40.75	6.1	46.85	74	-27.15	PK
		2491.26	29.01	6.1	35.11	54	-18.89	AVG
	*	4960	37.59	2.62	40.21	74	-33.79	PK
Vertical	@	2480	98.18	6.1	104.28	N/A	N/A	PK
	@	2480	97.74	6.1	103.84	N/A	N/A	AVG
		2489.93	40.66	6.1	46.76	74	-27.24	PK
		2490.5	30.63	6.1	36.73	54	-17.27	AVG
	*	4960	36.79	2.62	39.41	74	-34.59	PK

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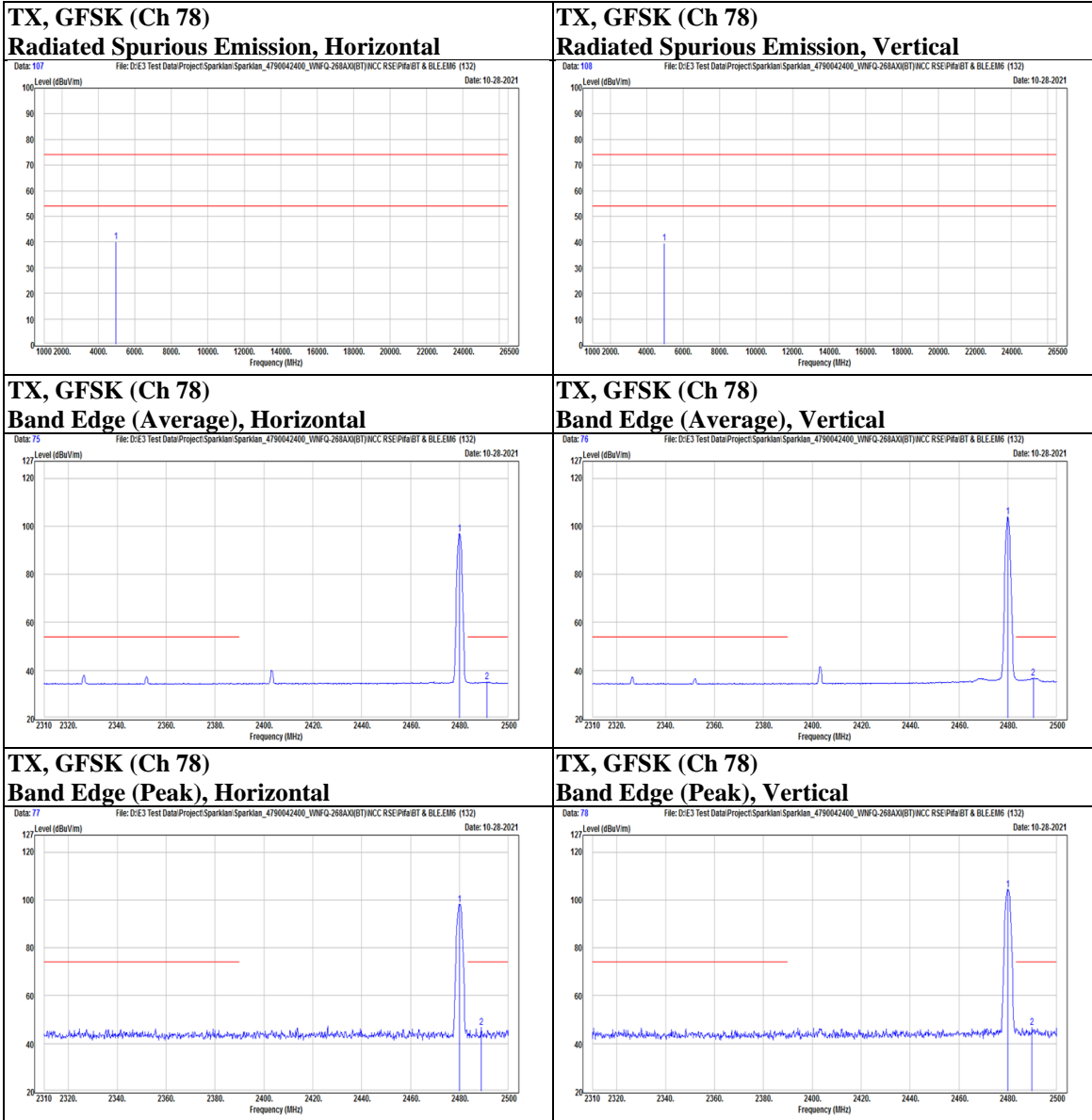
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Mode	8DPSK	Channel	0
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Polarization	Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal		2325.2	32.25	6.13	38.38	54	-15.62	AVG
		2357.69	40.47	6.05	46.52	74	-27.48	PK
	@	2402	91.53	6.13	97.66	N/A	N/A	PK
	@	2402	89.46	6.13	95.59	N/A	N/A	AVG
	*	4804	35.97	2.46	38.43	74	-35.57	PK
Vertical		2325.2	31.22	6.13	37.35	54	-16.65	AVG
		2348.95	40.89	6.04	46.93	74	-27.07	PK
	@	2402	93.97	6.13	100.1	N/A	N/A	PK
	@	2402	91.48	6.13	97.61	N/A	N/A	AVG
	*	4804	35.92	2.46	38.38	74	-35.62	PK

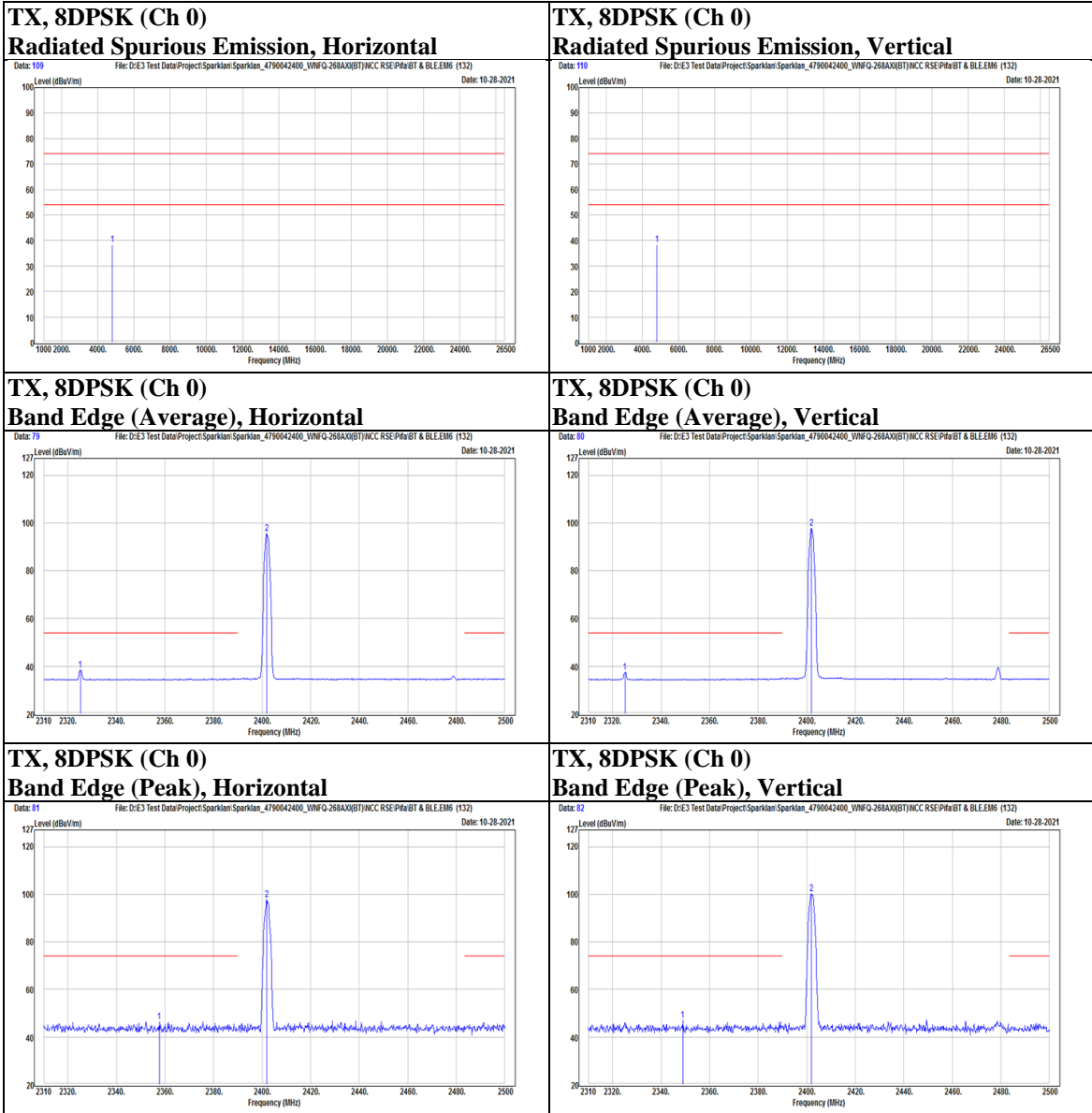
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Polarization	Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal		2318.93	40.34	6.17	46.51	74	-27.49	PK
		2364.15	33.16	6.06	39.22	54	-14.78	AVG
	@	2441	90.44	6.11	96.55	N/A	N/A	PK
	@	2441	87.77	6.11	93.88	N/A	N/A	AVG
		2484.04	39.65	6.1	45.75	74	-28.25	PK
		2490.88	28.64	6.1	34.74	54	-19.26	AVG
	*	4882	36.13	2.66	38.79	74	-35.21	PK
Vertical		2363.96	40.76	6.06	46.82	74	-27.18	PK
		2364.15	31.85	6.06	37.91	54	-16.09	AVG
	@	2441	95.66	6.11	101.77	N/A	N/A	PK
	@	2441	92.21	6.11	98.32	N/A	N/A	AVG
		2488.98	28.67	6.1	34.77	54	-19.23	AVG
		2489.74	39.76	6.1	45.86	74	-28.14	PK
	*	4882	36.4	2.66	39.06	74	-34.94	PK

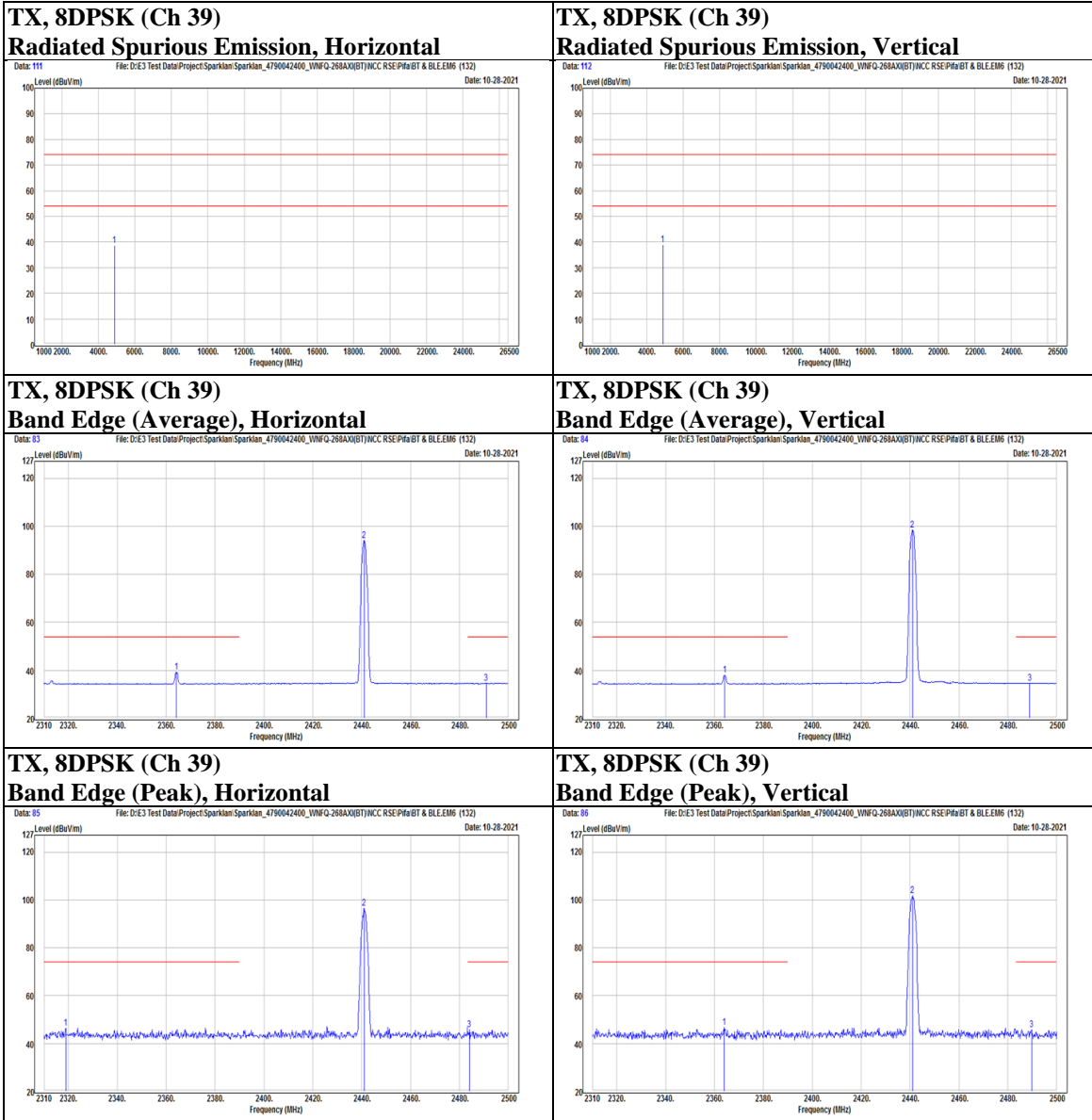
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Mode	8DPSK	Channel	78
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Polarization	Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal	@	2480	88.64	6.1	94.74	N/A	N/A	PK
	@	2480	85.55	6.1	91.65	N/A	N/A	AVG
		2485.75	40.2	6.1	46.3	74	-27.7	PK
		2493.16	28.86	6.1	34.96	54	-19.04	AVG
	*	4960	37.62	2.62	40.24	74	-33.76	PK
Vertical	@	2480	95.27	6.1	101.37	N/A	N/A	PK
	@	2480	92.57	6.1	98.67	N/A	N/A	AVG
		2483.66	29.72	6.1	35.82	54	-18.18	AVG
		2492.4	40.86	6.11	46.97	74	-27.03	PK
	*	4960	36.16	2.62	38.78	74	-35.22	PK

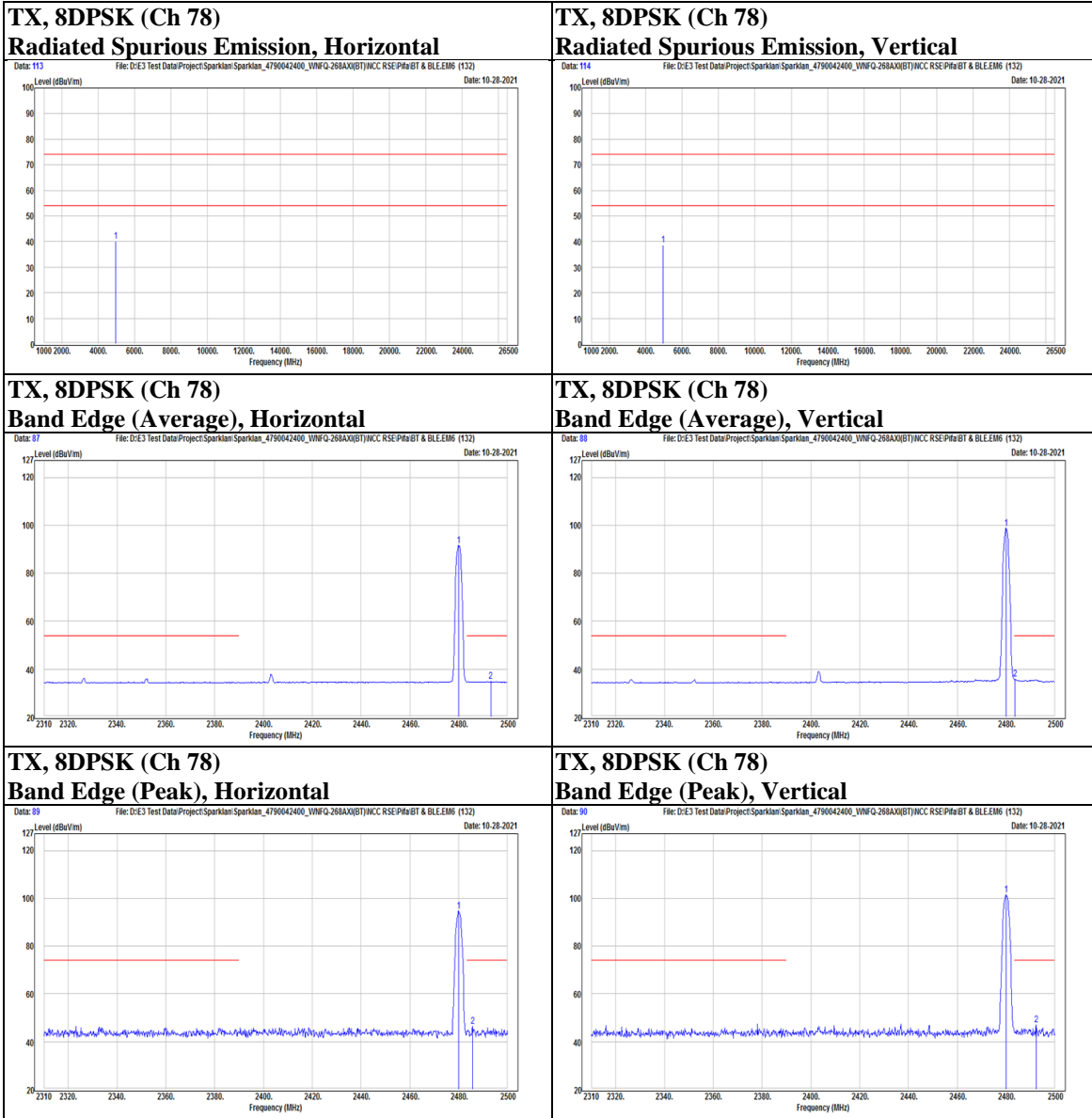
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### Below 1 GHz

Mode	GFSK	Channel	78
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Polarization	Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
		(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
Horizontal		99.84	40.1	-16.45	23.65	43.5	-19.85	PK
		165.8	39.05	-11.13	27.92	43.5	-15.58	PK
		199.75	49.95	-13.91	36.04	43.5	-7.46	PK
		288.99	43.03	-10.31	32.72	46	-13.28	PK
		298.69	45.87	-9.99	35.88	46	-10.12	PK
		519.85	33.91	-4.08	29.83	46	-16.17	PK
Vertical		32.91	38.45	-12.4	26.05	40	-13.95	PK
		165.8	36.63	-11.13	25.5	43.5	-18	PK
		299.66	36.58	-9.94	26.64	46	-19.36	PK
		365.62	35.22	-7.98	27.24	46	-18.76	PK
		482.02	36.96	-5.1	31.86	46	-14.14	PK
		697.36	34.66	-0.45	34.21	46	-11.79	PK

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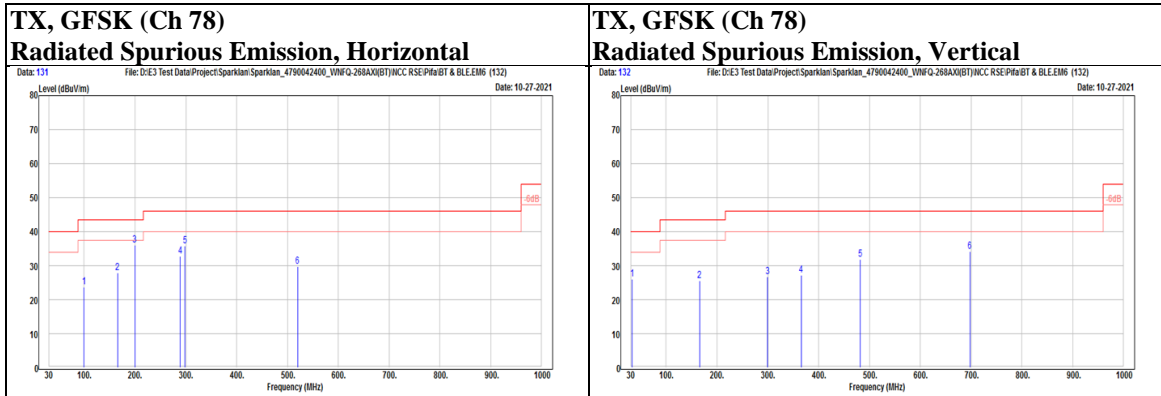
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### 9 kHz ~ 30 MHz Data:

For 9 kHz to 30 MHz radiated emission have performed all modes of operation were investigated. The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

No non-compliance noted:

### **KDB 414788 D01 OATS and Chamber Correlation Justification**

- Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

- OATs and chamber correlation testing had been performed and chamber measured test results is the worst case test result.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30m open area test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

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## 9.8. AC Power Line Conducted Emission

### Requirements

Frequency (MHz)	Conducted limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note:

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

### Test Procedures

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.
2. All modes of operation were investigated (includes all external accessories) and the worst-case emissions are reported, the other emission levels were low against the limit.
3. Test data of Result value (dBuV) = Reading value (dBuV) + Correction Factor (dB).
4. Test data of Margin(dB) = Result value (dBuV) - Limit value (dBuV).
5. Test data of Correction Factor (dB) = Insertion loss(dB) + Cable loss(dB).

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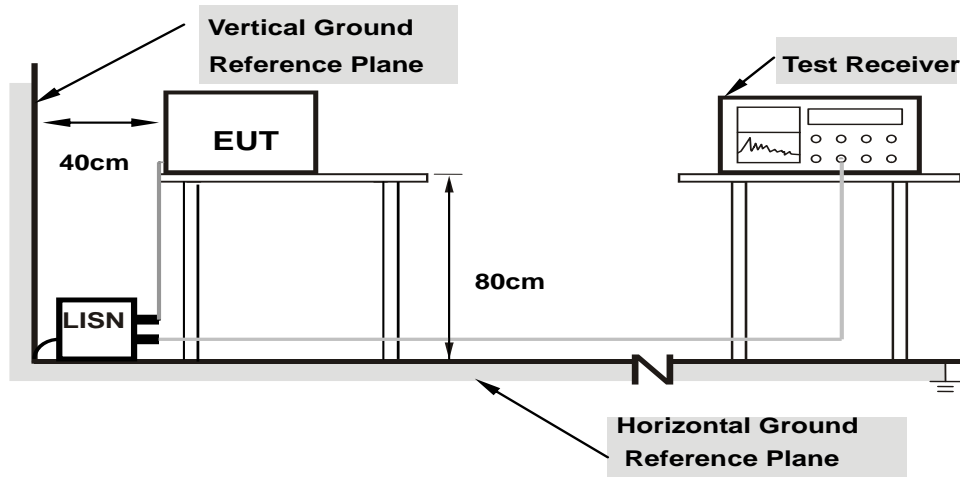
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## Test Setup



**Note: 1.Support units were connected to second LISN.**

For the actual test configuration, please refer to the Setup Configurations.

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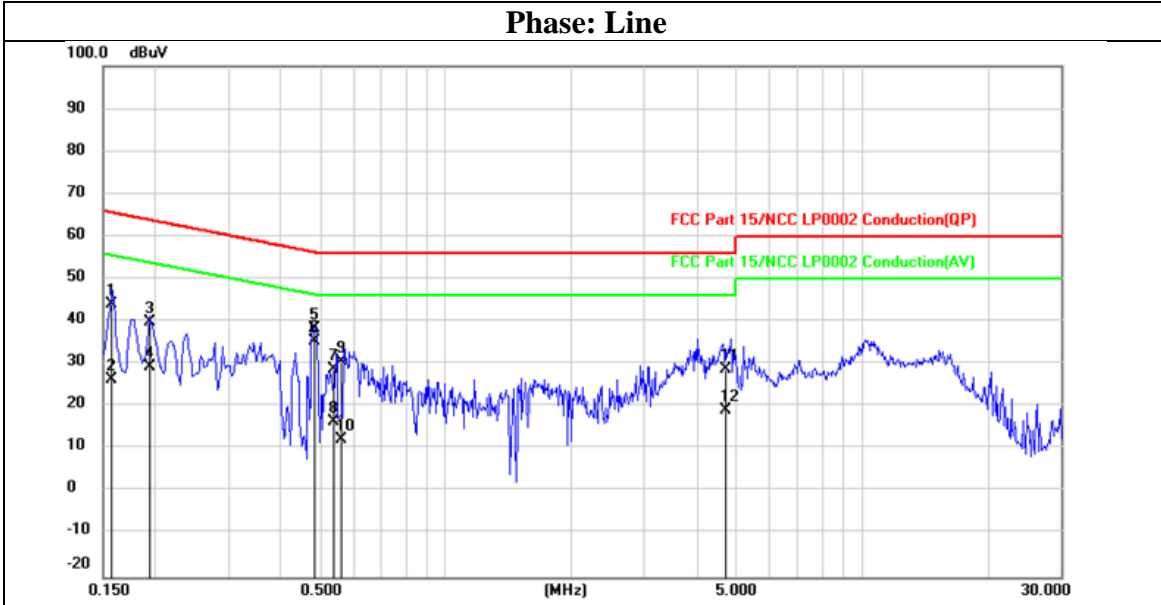
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**Test Data**

Mode	TX_GFSK	Channel	78
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1564	44.10	0.08	44.18	65.65	-21.47	QP
2	0.1564	26.34	0.08	26.42	55.65	-29.23	AVG
3	0.1930	39.92	0.08	40.00	63.91	-23.91	QP
4	0.1930	29.33	0.08	29.41	53.91	-24.50	AVG
5	0.4858	38.37	0.09	38.46	56.24	-17.78	QP
6	0.4858	35.31	0.09	35.40	46.24	-10.84	AVG
7	0.5369	28.62	0.09	28.71	56.00	-27.29	QP
8	0.5369	16.34	0.09	16.43	46.00	-29.57	AVG
9	0.5594	30.50	0.09	30.59	56.00	-25.41	QP
10	0.5594	12.06	0.09	12.15	46.00	-33.85	AVG
11	4.7385	28.65	0.22	28.87	56.00	-27.13	QP
12	4.7385	19.08	0.22	19.30	46.00	-26.70	AVG

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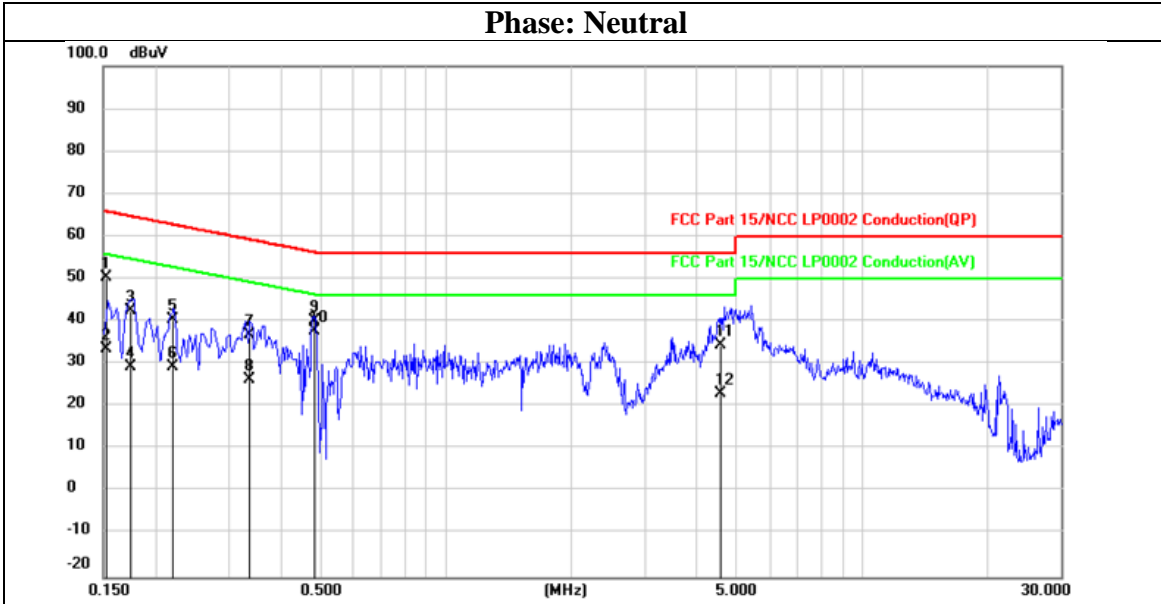
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Mode	TX_GFSK	Channel	78
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1524	50.40	0.06	50.46	65.87	-15.41	QP
2	0.1524	33.59	0.06	33.65	55.87	-22.22	AVG
3	0.1737	42.57	0.06	42.63	64.78	-22.15	QP
4	0.1737	29.33	0.06	29.39	54.78	-25.39	AVG
5	0.2219	40.39	0.07	40.46	62.75	-22.29	QP
6	0.2219	29.35	0.07	29.42	52.75	-23.33	AVG
7	0.3369	36.72	0.08	36.80	59.28	-22.48	QP
8	0.3369	26.18	0.08	26.26	49.28	-23.02	AVG
9	0.4834	40.06	0.08	40.14	56.28	-16.14	QP
10	0.4834	37.60	0.08	37.68	46.28	-8.60	AVG
11	4.5721	34.15	0.20	34.35	56.00	-21.65	QP
12	4.5721	22.77	0.20	22.97	46.00	-23.03	AVG

## END OF REPORT

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