Appendix C-GSM

Test Information:

Sample No.:	2YOF-1	**Test Date:**	2025/02/27~2025/06/04
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Benny Li	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	20.6~26.2	**Relative Humidity: (%)**	46~57	**ATM Pressure: (kPa)**	99.7~101.3

RF Output Power

FCC Part 22H

GSM 850, Normal

Mode	Average Conducted Power (dBm)	ERP (dBm)	Limit (dBm)	Verdict
GSM_Low	32.43	25.68	38.45	Pass
GSM_Middle	32.34	25.59	38.45	Pass
GSM_High	32.33	25.58	38.45	Pass
GPRS_Low_Slot1	32.43	25.68	38.45	Pass
GPRS_Low_Slot2	31.76	25.01	38.45	Pass
GPRS_Low_Slot3	30.12	23.37	38.45	Pass
GPRS_Low_Slot4	29.08	22.33	38.45	Pass
GPRS_Middle_Slot1	32.33	25.58	38.45	Pass
GPRS_Middle_Slot2	31.67	24.92	38.45	Pass
GPRS_Middle_Slot3	30.02	23.27	38.45	Pass
GPRS_Middle_Slot4	29.01	22.26	38.45	Pass
GPRS_High_Slot1	32.32	25.57	38.45	Pass
GPRS_High_Slot2	31.71	24.96	38.45	Pass
GPRS_High_Slot3	30.04	23.29	38.45	Pass
GPRS_High_Slot4	29.03	22.28	38.45	Pass
EDGE_Low_Slot1	27.61	20.86	38.45	Pass
EDGE_Low_Slot2	25.44	18.69	38.45	Pass
EDGE_Low_Slot3	23.40	16.65	38.45	Pass
EDGE_Low_Slot4	22.20	15.45	38.45	Pass
EDGE_Middle_Slot1	26.61	19.86	38.45	Pass
EDGE_Middle_Slot2	25.51	18.76	38.45	Pass
EDGE_Middle_Slot3	23.55	16.80	38.45	Pass
EDGE_Middle_Slot4	22.49	15.74	38.45	Pass
EDGE_High_Slot1	26.47	19.72	38.45	Pass
EDGE_High_Slot2	25.45	18.70	38.45	Pass
EDGE_High_Slot3	23.46	16.71	38.45	Pass
EDGE_High_Slot4	22.33	15.58	38.45	Pass

Note:

ERP = Average Conducted Power(dBm) + Antenna Gain(dBd) - Cable Loss(dB)

Antenna Gain(dBd) = Antenna Gain(dBi) - 2.15

GSM 850:

1.Antenna Gain = -3.6dBi;

2.Cable Loss = 1dB.

FCC Part 24E

GSM 1900, Normal

Mode	Average Conducted Power (dBm)	EIRP (dBm)	Limit (dBm)	Verdict
GSM_Low	28.87	28.77	33	Pass
GSM_Middle	28.75	28.65	33	Pass
GSM_High	28.72	28.62	33	Pass
GPRS_Low_Slot1	28.87	28.77	33	Pass
GPRS_Low_Slot2	28.15	28.05	33	Pass
GPRS_Low_Slot3	26.42	26.32	33	Pass
GPRS_Low_Slot4	25.38	25.28	33	Pass
GPRS_Middle_Slot1	28.75	28.65	33	Pass
GPRS_Middle_Slot2	28.01	27.91	33	Pass
GPRS_Middle_Slot3	26.30	26.20	33	Pass
GPRS_Middle_Slot4	25.24	25.14	33	Pass
GPRS_High_Slot1	28.73	28.63	33	Pass
GPRS_High_Slot2	28.01	27.91	33	Pass
GPRS_High_Slot3	26.28	26.18	33	Pass
GPRS_High_Slot4	25.22	25.12	33	Pass
EDGE_Low_Slot1	24.94	24.84	33	Pass
EDGE_Low_Slot2	23.97	23.87	33	Pass
EDGE_Low_Slot3	21.94	21.84	33	Pass
EDGE_Low_Slot4	20.83	20.73	33	Pass
EDGE_Middle_Slot1	24.98	24.88	33	Pass
EDGE_Middle_Slot2	23.86	23.76	33	Pass
EDGE_Middle_Slot3	21.87	21.77	33	Pass
EDGE_Middle_Slot4	20.80	20.70	33	Pass
EDGE_High_Slot1	24.79	24.69	33	Pass
EDGE_High_Slot2	23.78	23.68	33	Pass
EDGE_High_Slot3	21.77	21.67	33	Pass
EDGE_High_Slot4	20.71	20.61	33	Pass

Note:

EIRP = Average Conducted Power(dBm) + Antenna Gain(dBi) - Cable Loss(dB)

GSM 1900:

1.Antenna Gain = 0.9dBi;

2.Cable Loss = 1dB.

Peak-to-average Ratio(PAR)

FCC Part 22H

GSM 850, Normal

Mode	Result (dB)	Limit (dB)
GSM_Low	0.20	13
GSM_Middle	0.26	13
GSM_High	0.23	13
GPRS_Low_GMSK	0.23	13
GPRS_Middle_GMSK	0.29	13
GPRS_High_GMSK	0.26	13
EDGE_Low_8PSK	3.07	13
EDGE_Middle_8PSK	3.30	13
EDGE_High_8PSK	3.51	13

FCC Part 24E

GSM 1900, Normal

Mode	Result (dB)	Limit (dB)
GSM_Low	0.20	13
GSM_Middle	0.20	13
GSM_High	0.23	13
GPRS_Low_GMSK	0.20	13
GPRS_Middle_GMSK	0.26	13
GPRS_High_GMSK	0.29	13
EDGE_Low_8PSK	2.52	13
EDGE_Middle_8PSK	3.04	13
EDGE_High_8PSK	3.10	13

Occupied Bandwidth

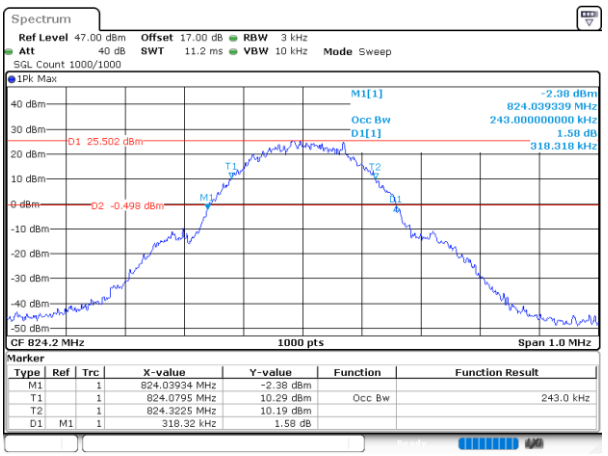
FCC Part 22H

GSM 850, Normal

Mode	99% OBW (MHz)	26dB BW (MHz)
GSM_Low	0.243	0.318
GSM_Middle	0.245	0.320
GSM_High	0.246	0.313
GPRS_Low_GMSK	0.245	0.318
GPRS_Middle_GMSK	0.244	0.317
GPRS_High_GMSK	0.244	0.317
EDGE_Low_8PSK	0.247	0.311
EDGE_Middle_8PSK	0.246	0.317
EDGE_High_8PSK	0.247	0.310

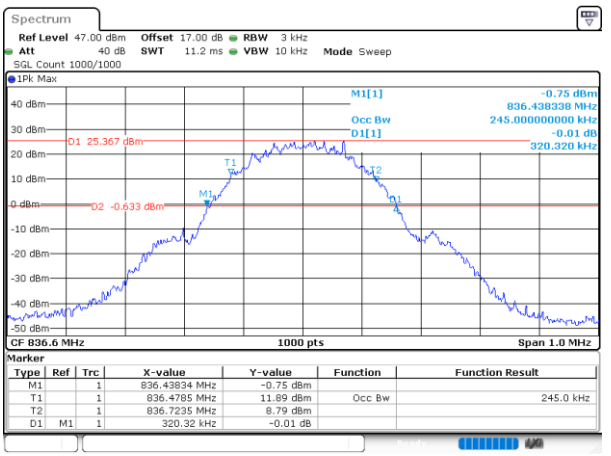
GSM 850, Normal

GSM_Low



ProjectNo.:2504Q09049E-RF Tester:Benny Li
Date: 27.FEB.2025 15:34:24

GSM_Middle



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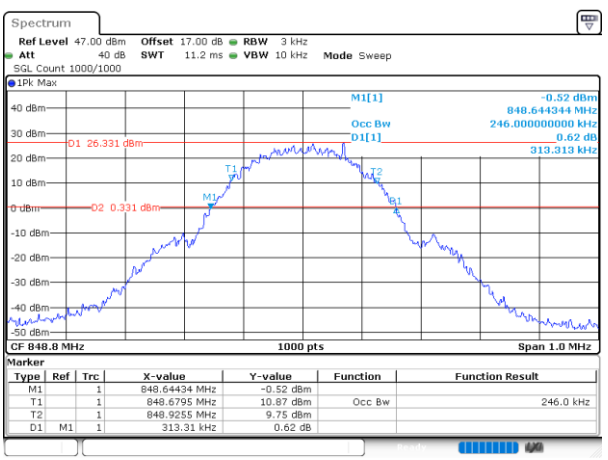
Date: 27.FEB.2025 15:35:28

GSM_High



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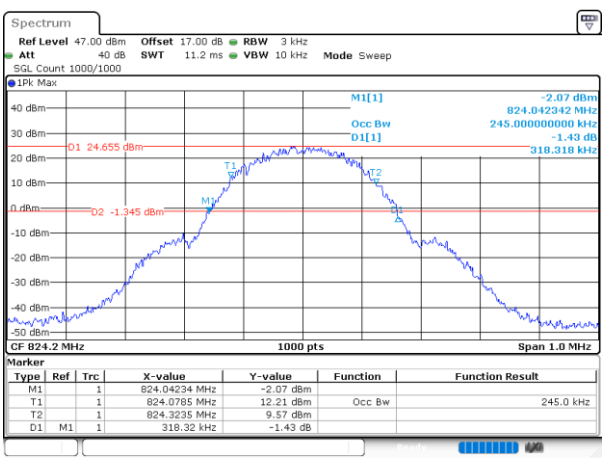
GPRS_Low_GMSK



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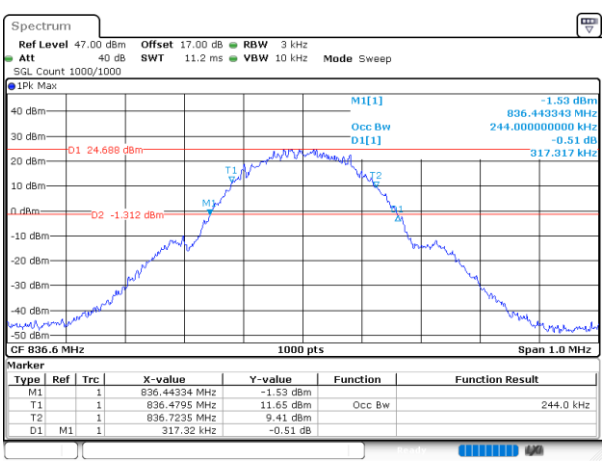
GPRS_Middle_GMSK



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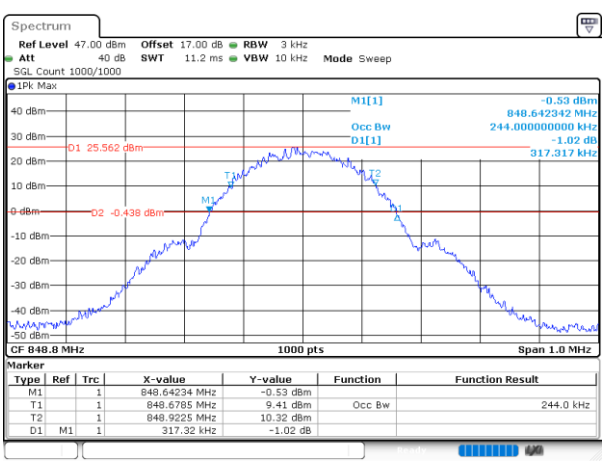
Date: 27.FEB.2025 15:38:16

GPRS_High_GMSK



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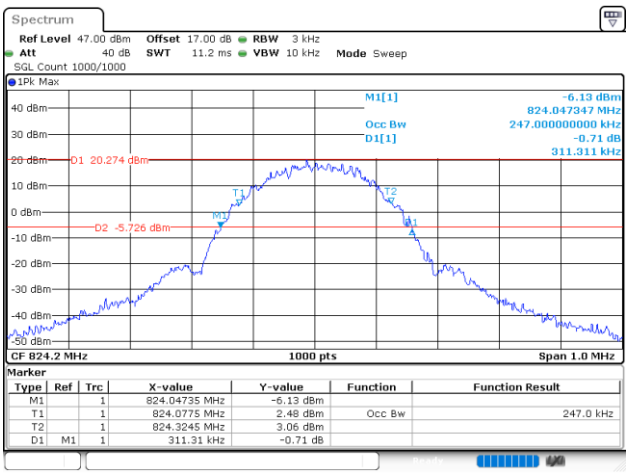
EDGE_Low_8PSK



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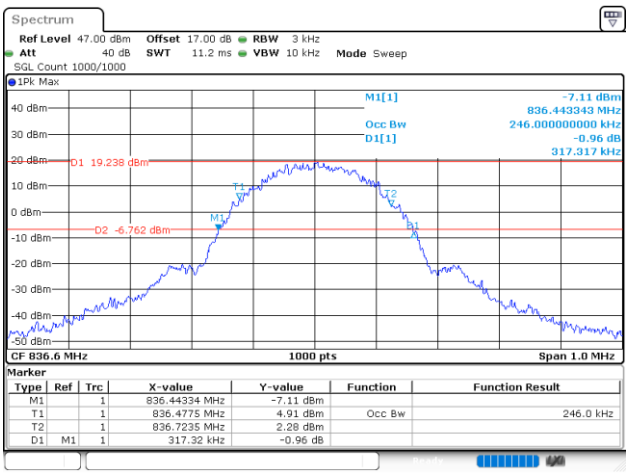
Date: 27.FEB.2025 15:40:01

EDGE_Middle_8PSK



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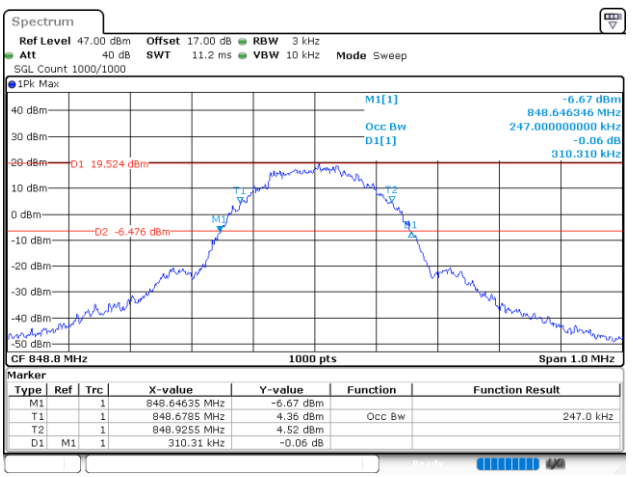
Date: 27.FEB.2025 15:41:13

EDGE_High_8PSK



ProjectNo.:2504Q09049E-RF Tester:Benny Li
Date: 27.FEB.2025 15:42:09

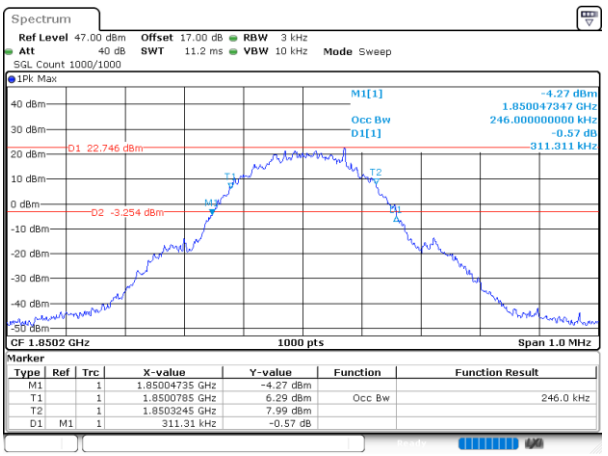
FCC Part 24E

GSM 1900, Normal

Mode	99% OBW (MHz)	26dB BW (MHz)
GSM_Low	0.246	0.311
GSM_Middle	0.246	0.316
GSM_High	0.243	0.317
GPRS_Low_GMSK	0.245	0.315
GPRS_Middle_GMSK	0.249	0.317
GPRS_High_GMSK	0.246	0.316
EDGE_Low_8PSK	0.252	0.317
EDGE_Middle_8PSK	0.252	0.320
EDGE_High_8PSK	0.250	0.314

GSM 1900, Normal

GSM_Low



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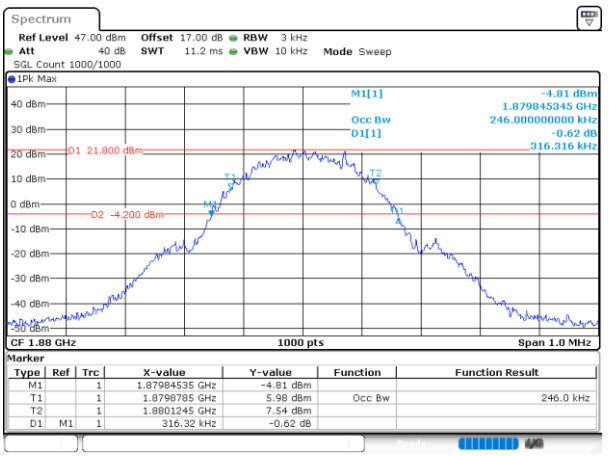
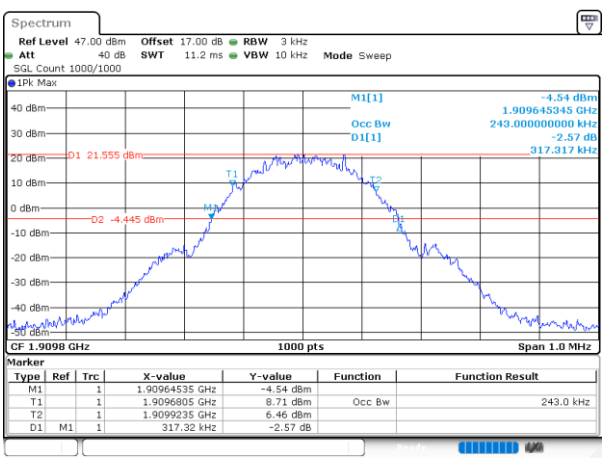
Date: 27.FEB.2025 15:53:02

GSM_Middle



ProjectNo.:2504Q09049E-RF Tester:Benny Li
Date: 27.FEB.2025 15:54:08

GSM_High



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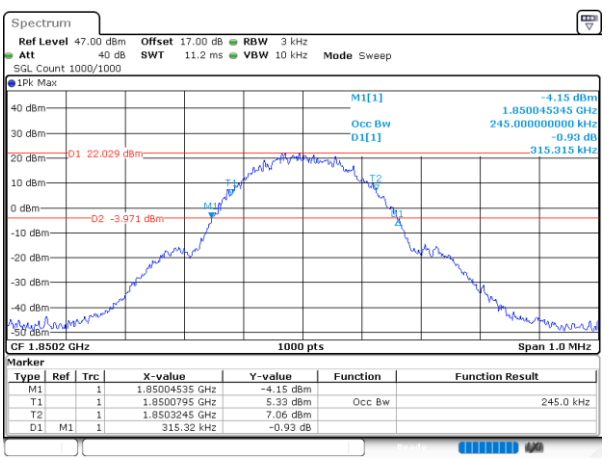
Date: 27.FEB.2025 15:55:09

GPRS_Low_GMSK



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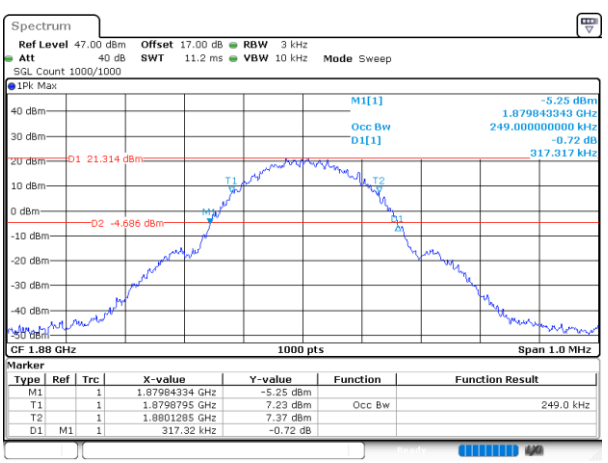
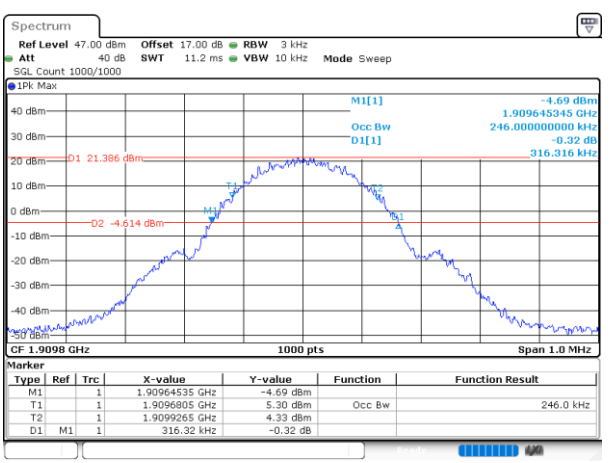
Date: 27.FEB.2025 15:56:03

GPRS_Middle_GMSK



ProjectNo.:2504Q09049E-RF Tester:Benny Li
Date: 27.FEB.2025 15:56:58

GPRS_High_GMSK



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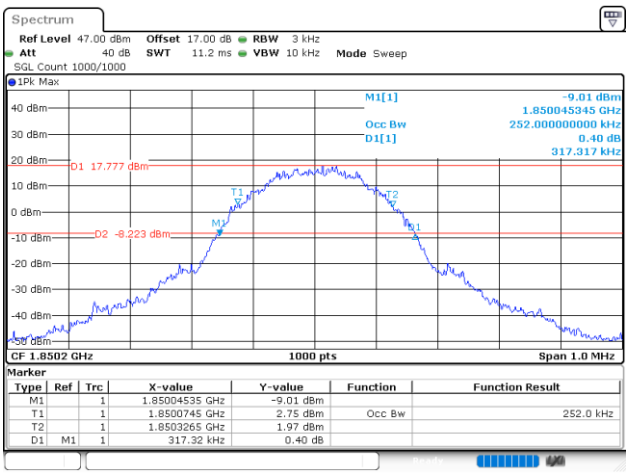
Date: 27.FEB.2025 15:57:52

EDGE_Low_8PSK



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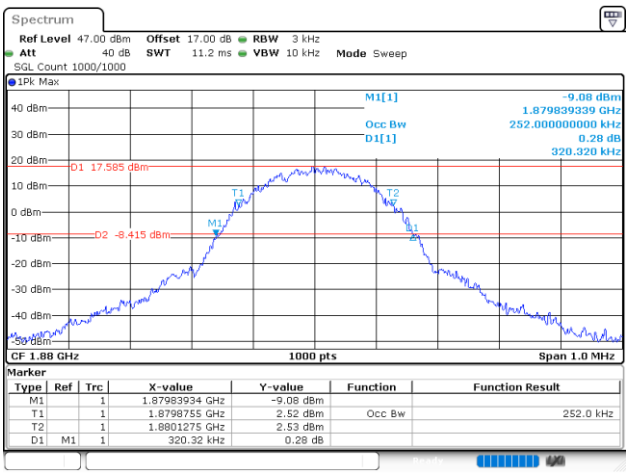
EDGE_Middle_8PSK



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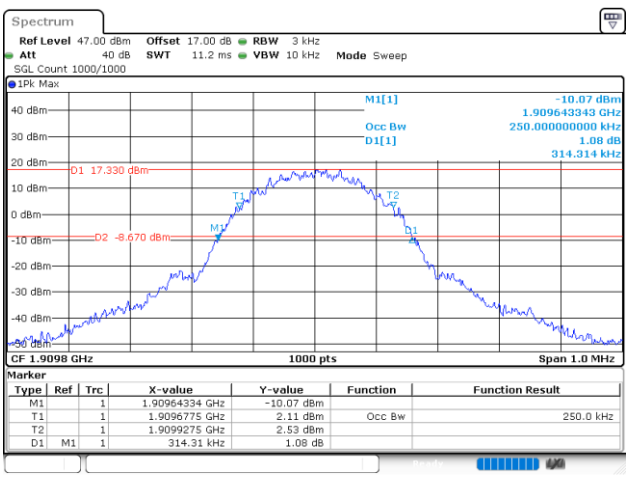
EDGE_High_8PSK



ProjectNo.:2504Q09049E-RF Tester:Benny Li
Date: 27.FEB.2025 16:00:50

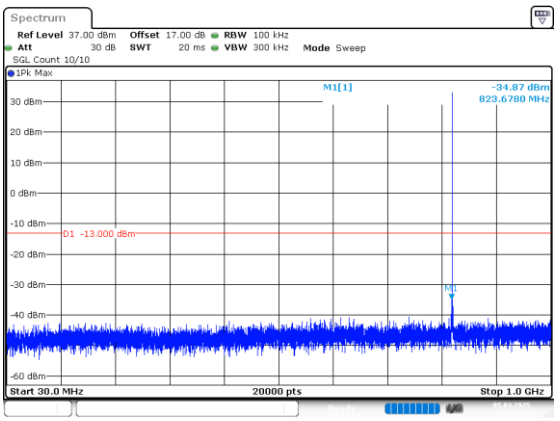
Spurious Emissions at Antenna Terminal

FCC Part 22H

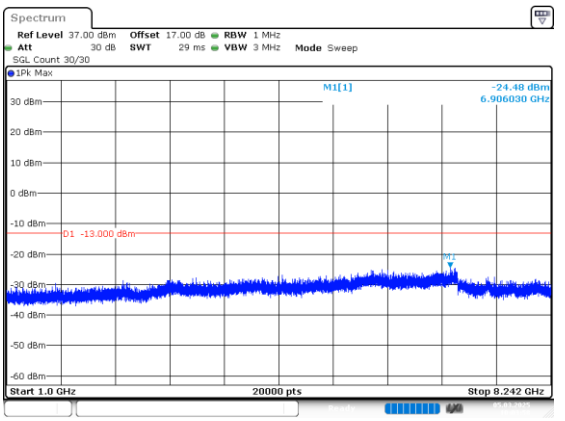
GSM 850, Normal

GSM_Low

Below 1G

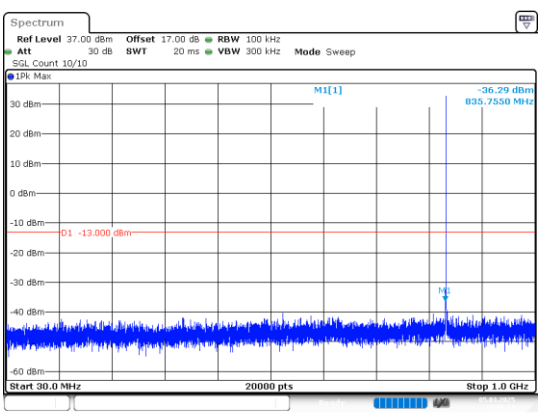


Above 1G



GSM_Middle

Below 1G



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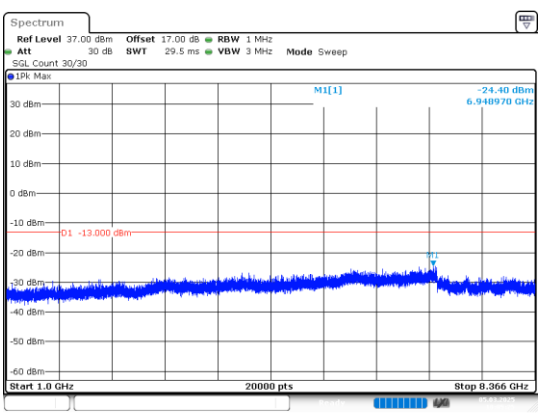
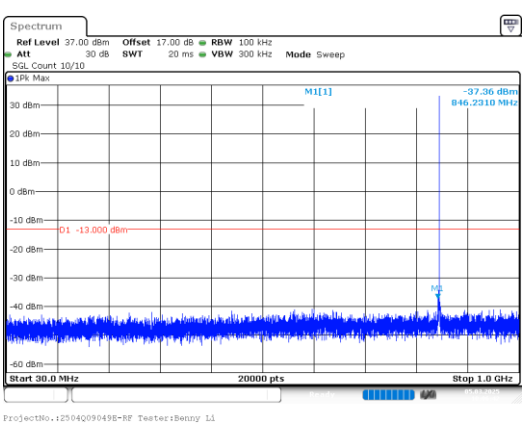


GSM_High

Below 1G



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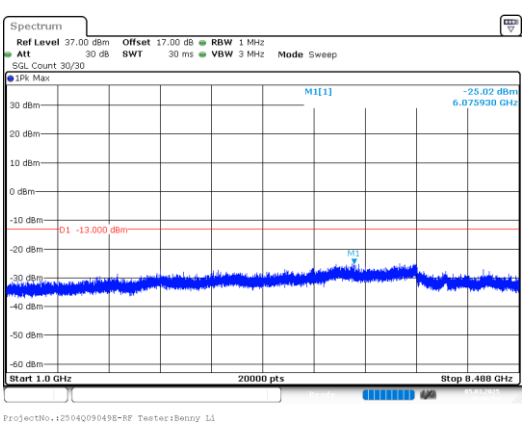
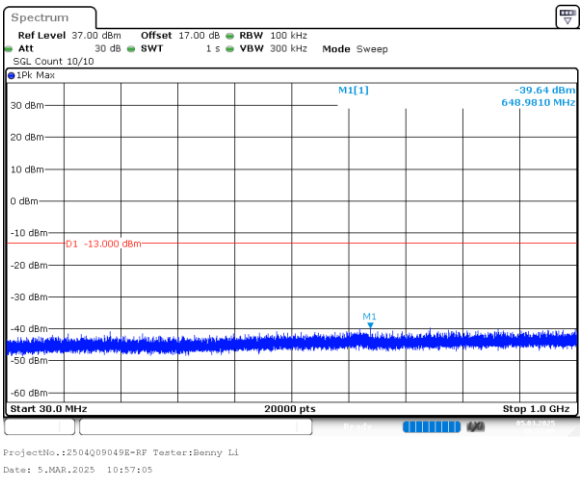


FCC Part 24E

GSM 1900, Normal

GSM_Low

Below 1G



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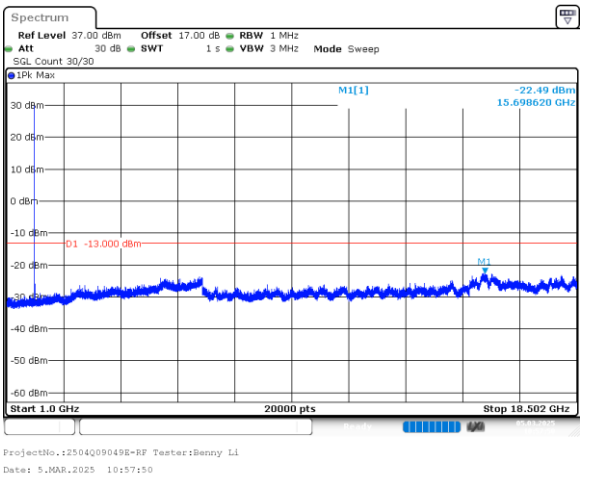
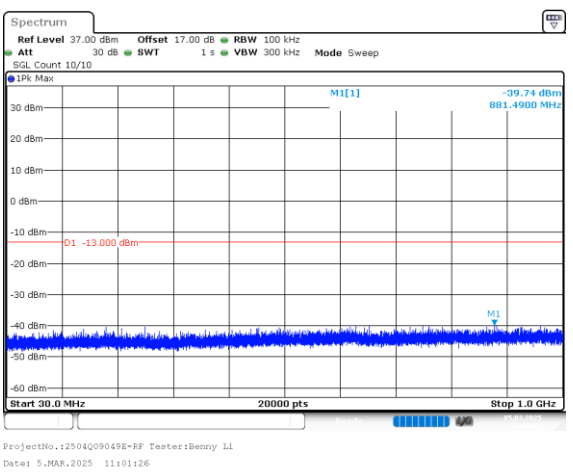


GSM_Middle

Below 1G



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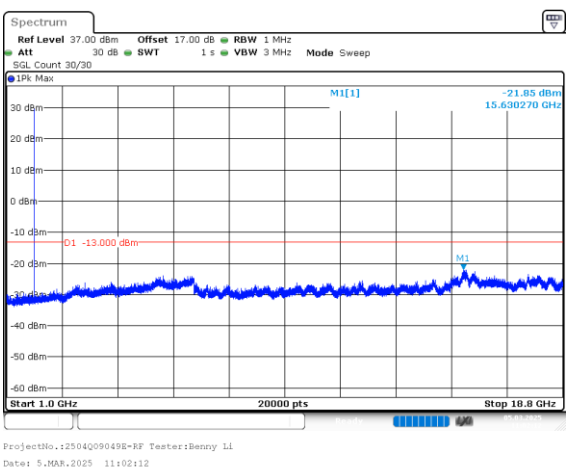
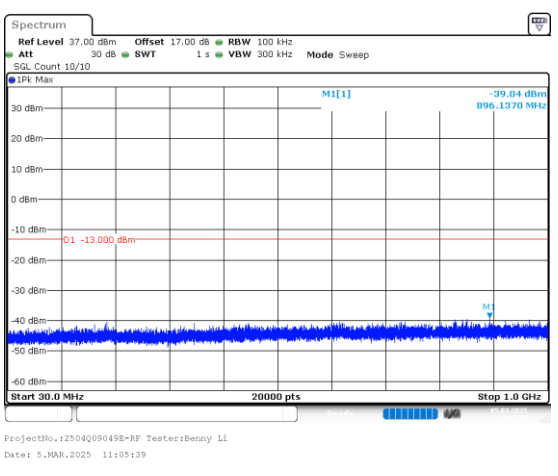


GSM_High

Below 1G



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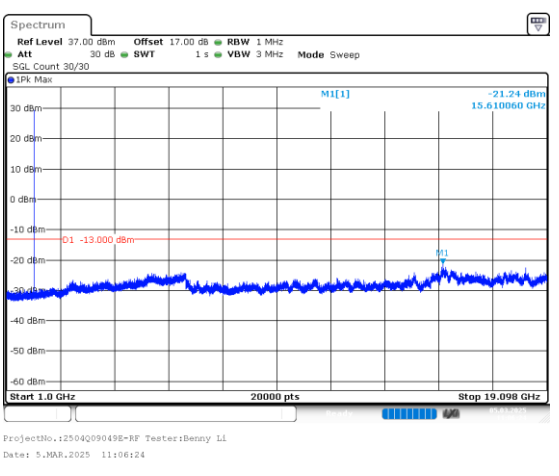


Out of band emission,Band Edge

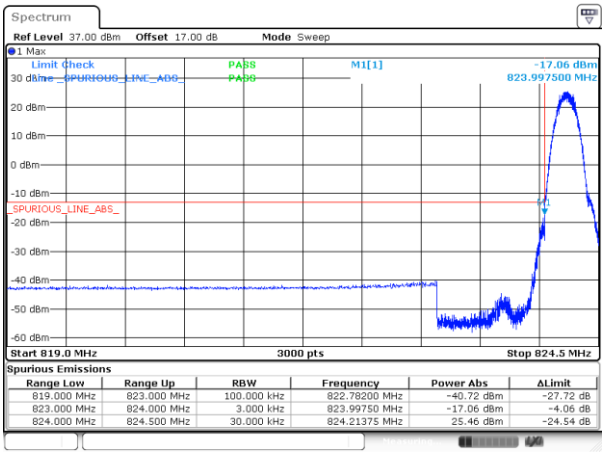
FCC Part 22H

GSM 850, Normal

Mode	Result (dBm)	Limit	Verdict
GSM_Low	-17.06	See Graphs	Pass
GSM_High	-17.89	See Graphs	Pass
GPRS_Low_GMSK	-18.88	See Graphs	Pass
GPRS_High_GMSK	-18.59	See Graphs	Pass
EDGE_Low_8PSK	-24.85	See Graphs	Pass
EDGE_High_8PSK	-25.62	See Graphs	Pass

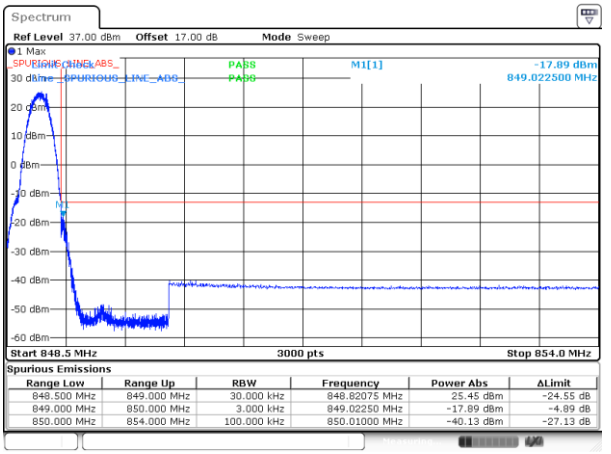
GSM 850, Normal

GSM_Low



ProjectNo.:2504Q09049E-RF Tester:Benny Li
Date: 27.FEB.2025 16:10:50

GSM_High



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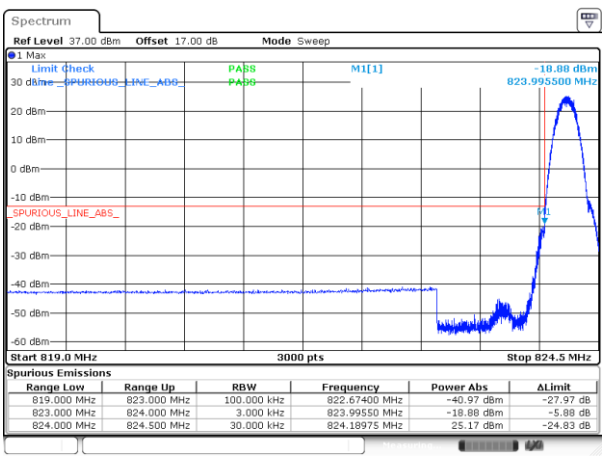
Date: 27.FEB.2025 16:12:13

GPRS_Low_GMSK



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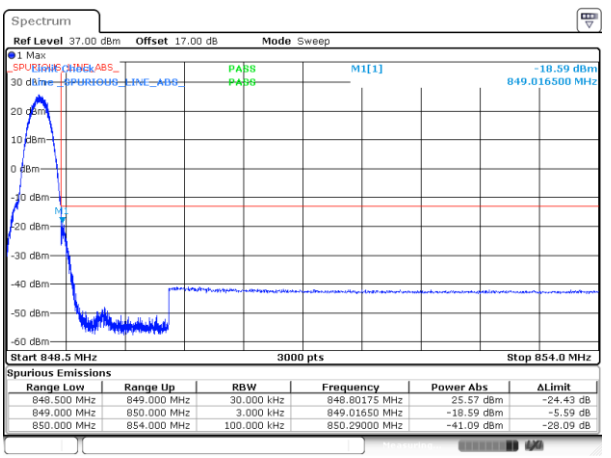
Date: 27.FEB.2025 16:13:39

GPRS_High_GMSK



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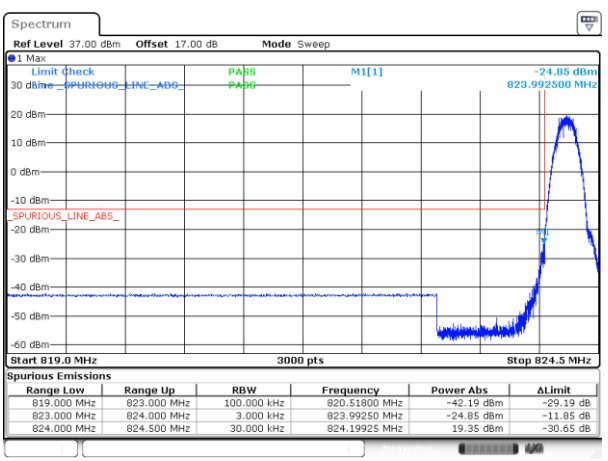
Date: 27.FEB.2025 16:15:07

EDGE_Low_8PSK



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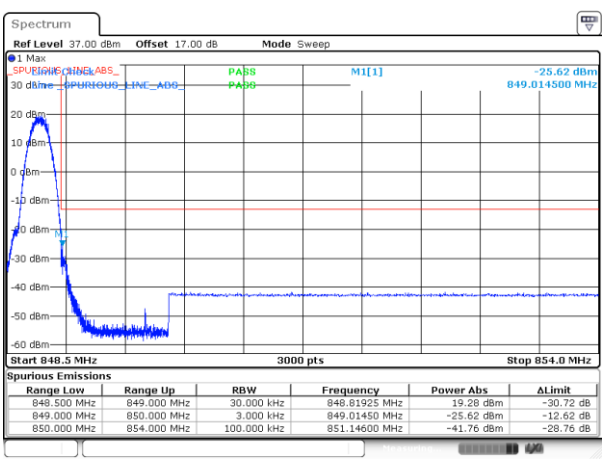
Date: 27.FEB.2025 16:16:30

EDGE_High_8PSK



ProjectNo.:2504Q09049E-RF Tester:Benny Li
Date: 27.FEB.2025 16:17:57

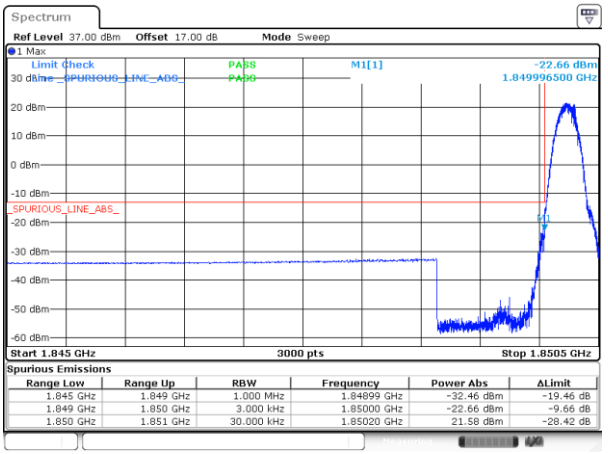
FCC Part 24E

GSM 1900, Normal

Mode	Result (dBm)	Limit	Verdict
GSM_Low	-22.66	See Graphs	Pass
GSM_High	-21.47	See Graphs	Pass
GPRS_Low_GMSK	-22.12	See Graphs	Pass
GPRS_High_GMSK	-23.54	See Graphs	Pass
EDGE_Low_8PSK	-28.92	See Graphs	Pass
EDGE_High_8PSK	-27.52	See Graphs	Pass

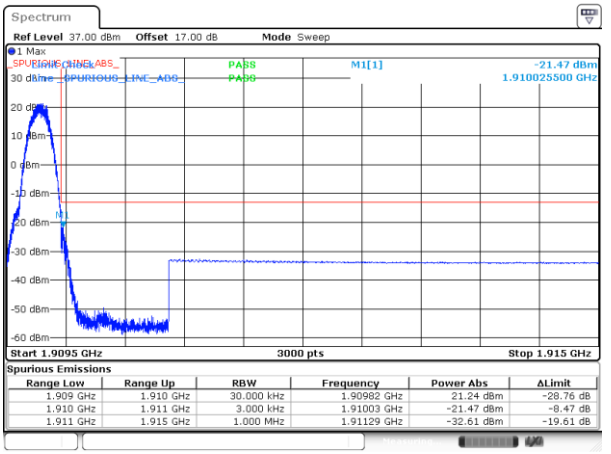
GSM 1900, Normal

GSM_Low



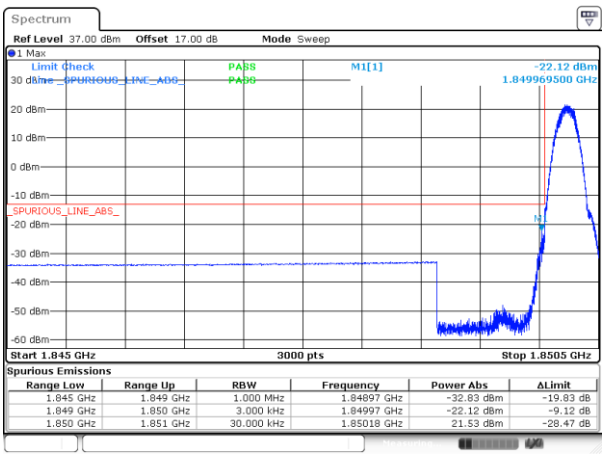
ProjectNo.:2504Q09049E-RF Tester:Benny Li
Date: 27.FEB.2025 16:20:27

GSM_High



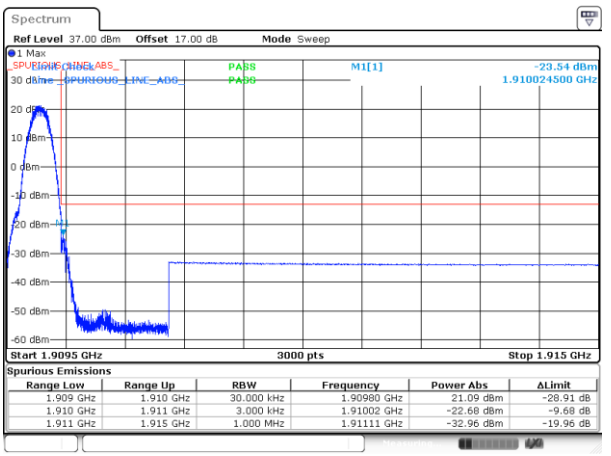
ProjectNo.:2504Q09049E-RF Tester:Benny Li
Date: 27.FEB.2025 16:21:56

GPRS_Low_GMSK



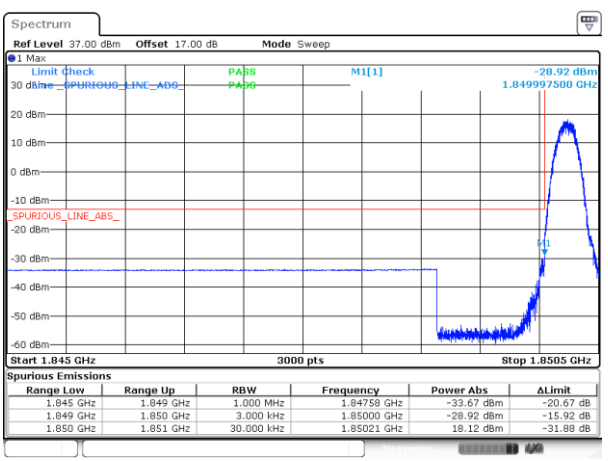
ProjectNo.:2504Q09049E-RF Tester:Benny Li
Date: 27.FEB.2025 16:23:14

GPRS_High_GMSK



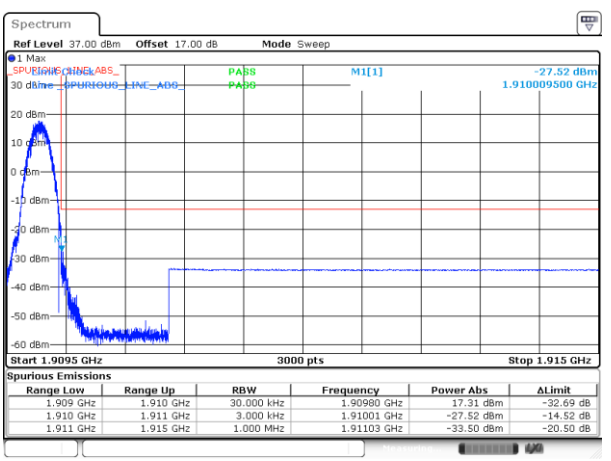
ProjectNo.:2504Q09049E-RF Tester:Benny Li
Date: 27.FEB.2025 16:24:37

EDGE_Low_8PSK



ProjectNo.:2504Q09049E-RF Tester:Benny Li
Date: 27.FEB.2025 16:25:53

EDGE_High_8PSK



ProjectNo.:2504Q09049E-RF Tester:Benny Li
Date: 27.FEB.2025 16:26:55

Frequency stability vs. temperature &Frequency stability vs. voltage Compliance

FCC Part 22H

GSM 850

Mode	Test Channel (MHz)	Frequency Error		Limit (ppm)	Verdict
		(Hz)	(ppm)		
GSM_Middle_TN/VN	836.6	9.0	0.0108	±2.5	Pass
GSM_Middle_T1/VN	836.6	6.9	0.0083	±2.5	Pass
GSM_Middle_T2/VN	836.6	5.3	0.0063	±2.5	Pass
GSM_Middle_T3/VN	836.6	0.7	0.0009	±2.5	Pass
GSM_Middle_T4/VN	836.6	10.3	0.0123	±2.5	Pass
GSM_Middle_T5/VN	836.6	10.4	0.0124	±2.5	Pass
GSM_Middle_T6/VN	836.6	12.7	0.0152	±2.5	Pass
GSM_Middle_T7/VN	836.6	8.9	0.0106	±2.5	Pass
GSM_Middle_T8/VN	836.6	10.8	0.0129	±2.5	Pass
GSM_Middle_TN/VH	836.6	10.6	0.0126	±2.5	Pass
GSM_Middle_TN/VL	836.6	11.6	0.0138	±2.5	Pass
GPRS_Middle_GMSK_TN/VN	836.6	4.1	0.0049	±2.5	Pass
GPRS_Middle_GMSK_T1/VN	836.6	2.9	0.0034	±2.5	Pass
GPRS_Middle_GMSK_T2/VN	836.6	6.8	0.0082	±2.5	Pass
GPRS_Middle_GMSK_T3/VN	836.6	3.9	0.0046	±2.5	Pass
GPRS_Middle_GMSK_T4/VN	836.6	6.2	0.0074	±2.5	Pass
GPRS_Middle_GMSK_T5/VN	836.6	9.3	0.0111	±2.5	Pass
GPRS_Middle_GMSK_T6/VN	836.6	5.6	0.0067	±2.5	Pass
GPRS_Middle_GMSK_T7/VN	836.6	9.0	0.0108	±2.5	Pass
GPRS_Middle_GMSK_T8/VN	836.6	7.6	0.0091	±2.5	Pass
GPRS_Middle_GMSK_TN/VH	836.6	2.4	0.0029	±2.5	Pass
GPRS_Middle_GMSK_TN/VL	836.6	4.7	0.0056	±2.5	Pass
EDGE_Middle_8PSK_TN/VN	836.6	8.2	0.0098	±2.5	Pass
EDGE_Middle_8PSK_T1/VN	836.6	8.8	0.0105	±2.5	Pass
EDGE_Middle_8PSK_T2/VN	836.6	8.2	0.0098	±2.5	Pass
EDGE_Middle_8PSK_T3/VN	836.6	6.3	0.0076	±2.5	Pass
EDGE_Middle_8PSK_T4/VN	836.6	8.7	0.0103	±2.5	Pass
EDGE_Middle_8PSK_T5/VN	836.6	6.6	0.0079	±2.5	Pass
EDGE_Middle_8PSK_T6/VN	836.6	5.1	0.0061	±2.5	Pass
EDGE_Middle_8PSK_T7/VN	836.6	6.9	0.0083	±2.5	Pass
EDGE_Middle_8PSK_T8/VN	836.6	6.7	0.0080	±2.5	Pass

Mode	Test Channel (MHz)	Frequency Error		Limit (ppm)	Verdict
		(Hz)	(ppm)		
EDGE_Middle_8PSK_TN/VH	836.6	6.7	0.0080	±2.5	Pass
EDGE_Middle_8PSK_TN/VL	836.6	6.9	0.0083	±2.5	Pass

Note:

Frequency Error (ppm)=Frequency Error (MHz)/Test Channel(MHz)*10^6

TN: 20°C; T1: -30°C; T2: -20°C; T3: -10°C; T4: 0°C; T5: 10°C; T6: 30°C; T7: 40°C; T8: 50°C.

VN: Normal Voltage; VL: Low Voltage; VH: High Voltage.

FCC Part 24E

GSM 1900

Mode	Result (MHz)	Limit (MHz)	Verdict
GSM_Low_TN/VN	1850.078	1850	Pass
GSM_Low_T1/VN	1850.079	1850	Pass
GSM_Low_T2/VN	1850.076	1850	Pass
GSM_Low_T3/VN	1850.079	1850	Pass
GSM_Low_T4/VN	1850.081	1850	Pass
GSM_Low_T5/VN	1850.078	1850	Pass
GSM_Low_T6/VN	1850.079	1850	Pass
GSM_Low_T7/VN	1850.080	1850	Pass
GSM_Low_T8/VN	1850.079	1850	Pass
GSM_Low_TN/VH	1850.080	1850	Pass
GSM_Low_TN/VL	1850.079	1850	Pass
GSM_High_TN/VN	1909.925	1910	Pass
GSM_High_T1/VN	1909.922	1910	Pass
GSM_High_T2/VN	1909.923	1910	Pass
GSM_High_T3/VN	1909.920	1910	Pass
GSM_High_T4/VN	1909.926	1910	Pass
GSM_High_T5/VN	1909.924	1910	Pass
GSM_High_T6/VN	1909.923	1910	Pass
GSM_High_T7/VN	1909.922	1910	Pass
GSM_High_T8/VN	1909.926	1910	Pass
GSM_High_TN/VH	1909.924	1910	Pass
GSM_High_TN/VL	1909.927	1910	Pass
GPRS_Low_GMSK_TN/VN	1850.080	1850	Pass
GPRS_Low_GMSK_T1/VN	1850.075	1850	Pass
GPRS_Low_GMSK_T2/VN	1850.079	1850	Pass
GPRS_Low_GMSK_T3/VN	1850.079	1850	Pass
GPRS_Low_GMSK_T4/VN	1850.078	1850	Pass
GPRS_Low_GMSK_T5/VN	1850.077	1850	Pass
GPRS_Low_GMSK_T6/VN	1850.078	1850	Pass
GPRS_Low_GMSK_T7/VN	1850.079	1850	Pass

Mode	Result (MHz)	Limit (MHz)	Verdict
GPRS_Low_GMSK_T8/VN	1850.077	1850	Pass
GPRS_Low_GMSK_TN/VH	1850.079	1850	Pass
GPRS_Low_GMSK_TN/VL	1850.078	1850	Pass
GPRS_High_GMSK_TN/VN	1909.927	1910	Pass
GPRS_High_GMSK_T1/VN	1909.922	1910	Pass
GPRS_High_GMSK_T2/VN	1909.925	1910	Pass
GPRS_High_GMSK_T3/VN	1909.923	1910	Pass
GPRS_High_GMSK_T4/VN	1909.926	1910	Pass
GPRS_High_GMSK_T5/VN	1909.928	1910	Pass
GPRS_High_GMSK_T6/VN	1909.926	1910	Pass
GPRS_High_GMSK_T7/VN	1909.924	1910	Pass
GPRS_High_GMSK_T8/VN	1909.925	1910	Pass
GPRS_High_GMSK_TN/VH	1909.922	1910	Pass
GPRS_High_GMSK_TN/VL	1909.921	1910	Pass
EDGE_Low_8PSK_TN/VN	1850.074	1850	Pass
EDGE_Low_8PSK_T1/VN	1850.075	1850	Pass
EDGE_Low_8PSK_T2/VN	1850.072	1850	Pass
EDGE_Low_8PSK_T3/VN	1850.078	1850	Pass
EDGE_Low_8PSK_T4/VN	1850.073	1850	Pass
EDGE_Low_8PSK_T5/VN	1850.070	1850	Pass
EDGE_Low_8PSK_T6/VN	1850.071	1850	Pass
EDGE_Low_8PSK_T7/VN	1850.076	1850	Pass
EDGE_Low_8PSK_T8/VN	1850.078	1850	Pass
EDGE_Low_8PSK_TN/VH	1850.078	1850	Pass
EDGE_Low_8PSK_TN/VL	1850.066	1850	Pass
EDGE_High_8PSK_TN/VN	1909.926	1910	Pass
EDGE_High_8PSK_T1/VN	1909.929	1910	Pass
EDGE_High_8PSK_T2/VN	1909.921	1910	Pass
EDGE_High_8PSK_T3/VN	1909.927	1910	Pass
EDGE_High_8PSK_T4/VN	1909.925	1910	Pass
EDGE_High_8PSK_T5/VN	1909.920	1910	Pass
EDGE_High_8PSK_T6/VN	1909.925	1910	Pass
EDGE_High_8PSK_T7/VN	1909.921	1910	Pass
EDGE_High_8PSK_T8/VN	1909.922	1910	Pass

Mode	Result (MHz)	Limit (MHz)	Verdict
EDGE_High_8PSK_TN/VH	1909.925	1910	Pass
EDGE_High_8PSK_TN/VL	1909.928	1910	Pass

Note:

TN: 20°C; T1: -30°C; T2: -20°C; T3: -10°C; T4: 0°C; T5: 10°C; T6: 30°C; T7: 40°C; T8: 50°C.

VN: Normal Voltage; VL: Low Voltage; VH: High Voltage.

******* END *******