Appendix A-GSM

Test Information:

Sample No.:	315P-1	**Test Date:**	2025/05/01~2025/08/21
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Benny Li	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C)	24.1~26.1	**Relative Humidity: (%)**	47~64	**ATM Pressure: (kPa)**	99.3~101.3

RF Output Power

FCC Part 22H

GSM 850, Normal

Mode	Average Conducted Power (dBm)	ERP (dBm)	Limit (dBm)	Verdict
GSM_Low	33.66	30.98	38.45	Pass
GSM_Middle	33.65	30.97	38.45	Pass
GSM_High	33.63	30.95	38.45	Pass
GPRS_Low_Slot1	33.64	30.96	38.45	Pass
GPRS_Low_Slot2	32.90	30.22	38.45	Pass
GPRS_Low_Slot3	31.11	28.43	38.45	Pass
GPRS_Low_Slot4	30.00	27.32	38.45	Pass
GPRS_Middle_Slot1	33.55	30.87	38.45	Pass
GPRS_Middle_Slot2	32.93	30.25	38.45	Pass
GPRS_Middle_Slot3	31.16	28.48	38.45	Pass
GPRS_Middle_Slot4	30.05	27.37	38.45	Pass
GPRS_High_Slot1	33.62	30.94	38.45	Pass
GPRS_High_Slot2	32.89	30.21	38.45	Pass
GPRS_High_Slot3	31.17	28.49	38.45	Pass
GPRS_High_Slot4	30.08	27.40	38.45	Pass
EDGE_Low_Slot1	27.94	25.26	38.45	Pass
EDGE_Low_Slot2	26.94	24.26	38.45	Pass
EDGE_Low_Slot3	25.02	22.34	38.45	Pass
EDGE_Low_Slot4	23.81	21.13	38.45	Pass
EDGE_Middle_Slot1	27.87	25.19	38.45	Pass
EDGE_Middle_Slot2	26.88	24.20	38.45	Pass
EDGE_Middle_Slot3	24.90	22.22	38.45	Pass
EDGE_Middle_Slot4	23.39	20.71	38.45	Pass
EDGE_High_Slot1	27.76	25.08	38.45	Pass
EDGE_High_Slot2	26.84	24.16	38.45	Pass
EDGE_High_Slot3	24.76	22.08	38.45	Pass
EDGE_High_Slot4	23.64	20.96	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 = -0.53dBi;

2.Cable Loss = 0dB.

FCC Part 24E

GSM 1900, Normal

Mode	Average Conducted Power (dBm)	EIRP (dBm)	Limit (dBm)	Verdict
GSM_Low	30.23	29.87	33	Pass
GSM_Middle	30.71	30.35	33	Pass
GSM_High	30.53	30.17	33	Pass
GPRS_Low_Slot1	30.80	30.44	33	Pass
GPRS_Low_Slot2	30.04	29.68	33	Pass
GPRS_Low_Slot3	28.13	27.77	33	Pass
GPRS_Low_Slot4	27.03	26.67	33	Pass
GPRS_Middle_Slot1	30.68	30.32	33	Pass
GPRS_Middle_Slot2	29.96	29.60	33	Pass
GPRS_Middle_Slot3	28.22	27.86	33	Pass
GPRS_Middle_Slot4	27.11	26.75	33	Pass
GPRS_High_Slot1	30.48	30.12	33	Pass
GPRS_High_Slot2	29.80	29.44	33	Pass
GPRS_High_Slot3	28.14	27.78	33	Pass
GPRS_High_Slot4	27.08	26.72	33	Pass
EDGE_Low_Slot1	26.40	26.04	33	Pass
EDGE_Low_Slot2	25.27	24.91	33	Pass
EDGE_Low_Slot3	23.03	22.67	33	Pass
EDGE_Low_Slot4	21.84	21.48	33	Pass
EDGE_Middle_Slot1	26.31	25.95	33	Pass
EDGE_Middle_Slot2	25.30	24.94	33	Pass
EDGE_Middle_Slot3	23.08	22.72	33	Pass
EDGE_Middle_Slot4	21.87	21.51	33	Pass
EDGE_High_Slot1	27.12	26.76	33	Pass
EDGE_High_Slot2	25.76	25.40	33	Pass
EDGE_High_Slot3	23.53	23.17	33	Pass
EDGE_High_Slot4	22.03	21.67	33	Pass

Note:

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

GSM 1900:

1.Antenna Gain = -0.36dBi;

2.Cable Loss = 0dB.

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	0.20	13
GPRS_Low_GMSK	0.20	13
GPRS_Middle_GMSK	0.26	13
GPRS_High_GMSK	0.26	13
EDGE_Low_8PSK	3.04	13
EDGE_Middle_8PSK	3.07	13
EDGE_High_8PSK	3.28	13

FCC Part 24E

GSM 1900, Normal

Mode	Result (dB)	Limit (dB)
GSM_Low	0.23	13
GSM_Middle	0.26	13
GSM_High	0.26	13
GPRS_Low_GMSK	0.20	13
GPRS_Middle_GMSK	0.29	13
GPRS_High_GMSK	0.26	13
EDGE_Low_8PSK	3.51	13
EDGE_Middle_8PSK	3.65	13
EDGE_High_8PSK	3.51	13

Occupied Bandwidth

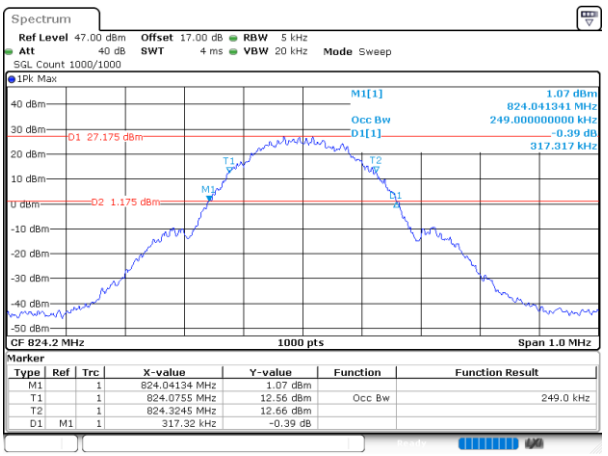
FCC Part 22H

GSM 850, Normal

Mode	99% OBW (MHz)	26dB BW (MHz)
GSM_Low	0.249	0.317
GSM_Middle	0.242	0.315
GSM_High	0.246	0.315
GPRS_Low_GMSK	0.246	0.317
GPRS_Middle_GMSK	0.247	0.319
GPRS_High_GMSK	0.245	0.315
EDGE_Low_8PSK	0.248	0.319
EDGE_Middle_8PSK	0.248	0.319
EDGE_High_8PSK	0.251	0.321

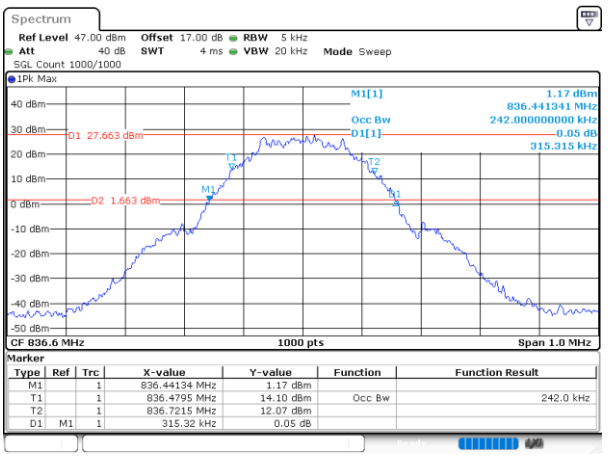
GSM 850, Normal

GSM_Low



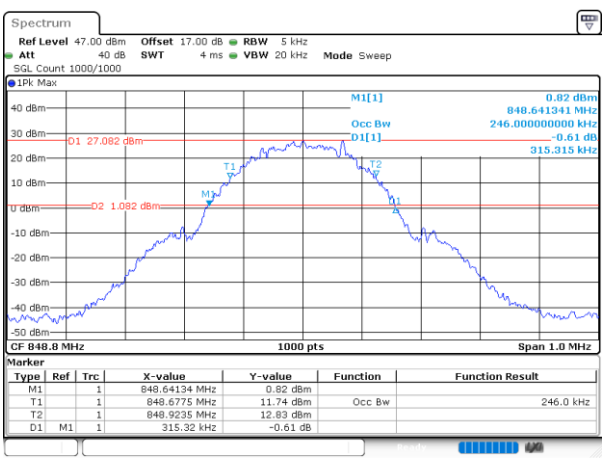
ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 21.AUG.2025 10:39:59

GSM_Middle



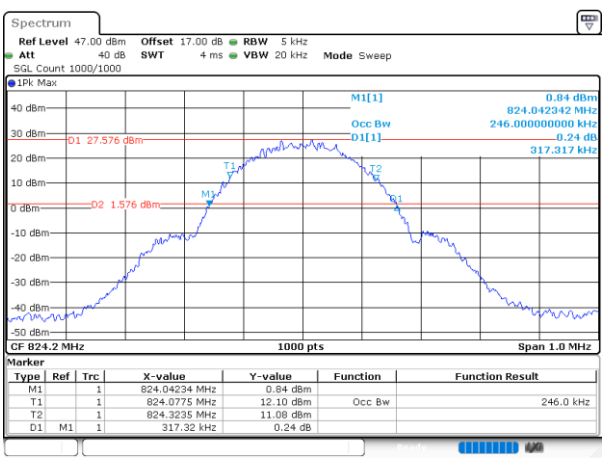
ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 21.AUG.2025 10:41:44

GSM_High



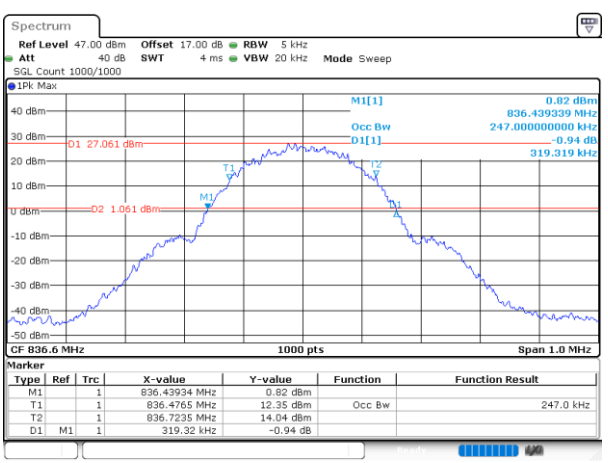
ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 21.AUG.2025 10:42:28

GPRS_Low_GMSK



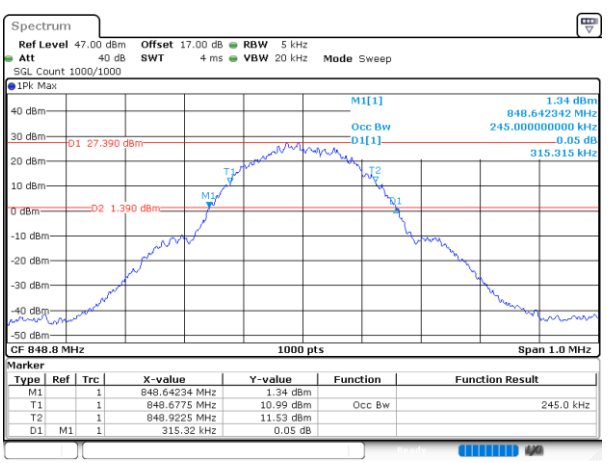
ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 21.AUG.2025 10:42:59

GPRS_Middle_GMSK



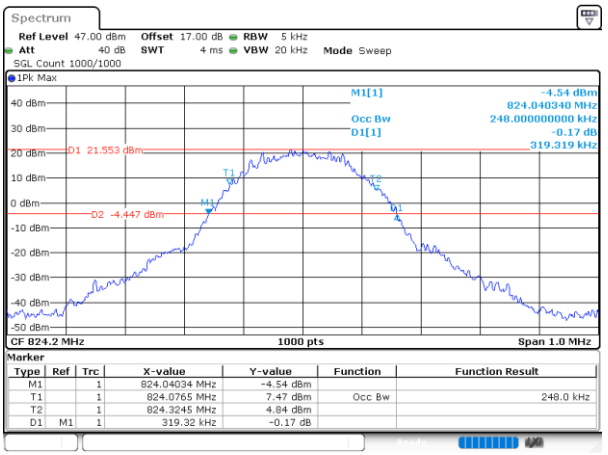
ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 21.AUG.2025 10:43:58

GPRS_High_GMSK



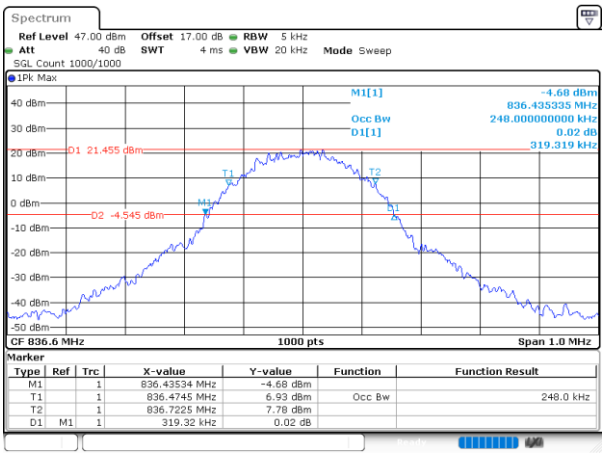
ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 21.AUG.2025 10:45:13

EDGE_Low_8PSK



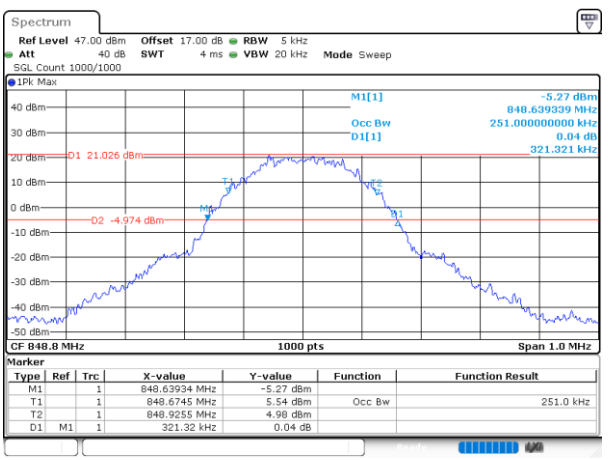
ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 21.AUG.2025 10:46:01

EDGE_Middle_8PSK



ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 21.AUG.2025 10:46:59

EDGE_High_8PSK



ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 21.AUG.2025 10:47:32

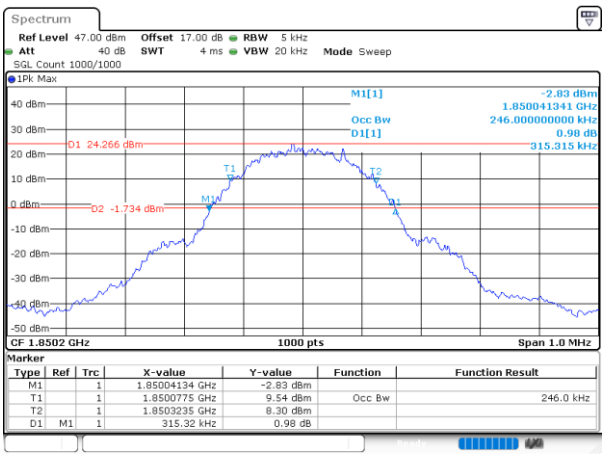
FCC Part 24E

GSM 1900, Normal

Mode	99% OBW (MHz)	26dB BW (MHz)
GSM_Low	0.246	0.315
GSM_Middle	0.245	0.316
GSM_High	0.246	0.314
GPRS_Low_GMSK	0.246	0.319
GPRS_Middle_GMSK	0.243	0.318
GPRS_High_GMSK	0.246	0.314
EDGE_Low_8PSK	0.248	0.318
EDGE_Middle_8PSK	0.244	0.314
EDGE_High_8PSK	0.246	0.312

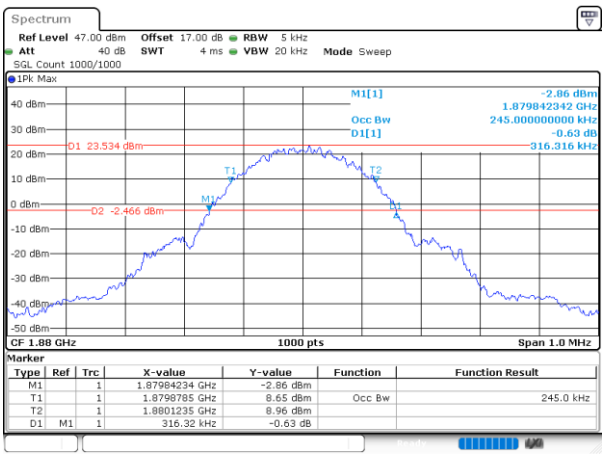
GSM 1900, Normal

GSM_Low



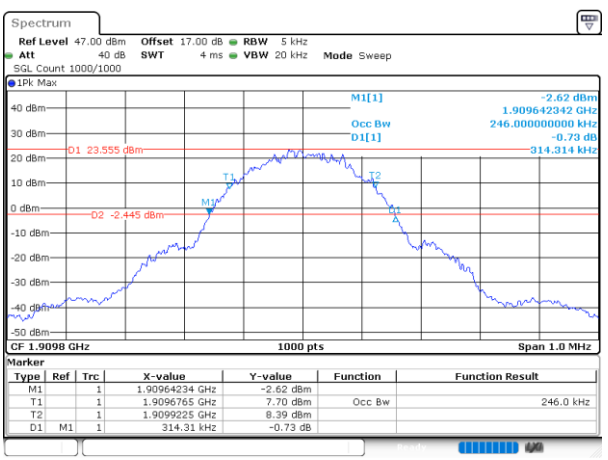
ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 21.AUG.2025 10:48:40

GSM_Middle



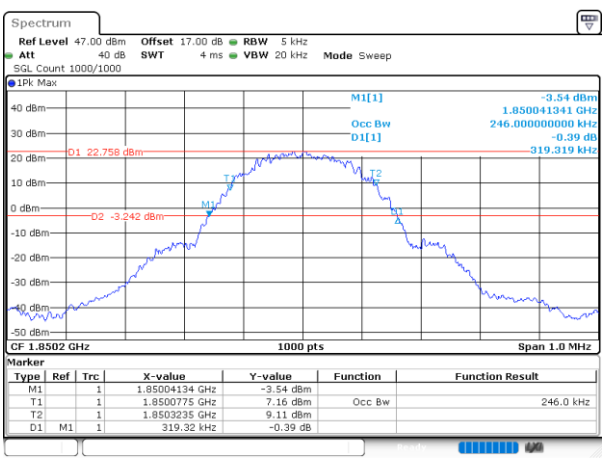
ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 21.AUG.2025 10:49:26

GSM_High



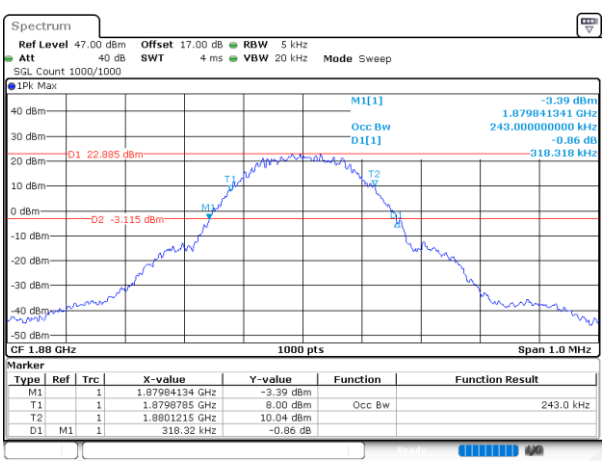
ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 21.AUG.2025 10:50:14

GPRS_Low_GMSK



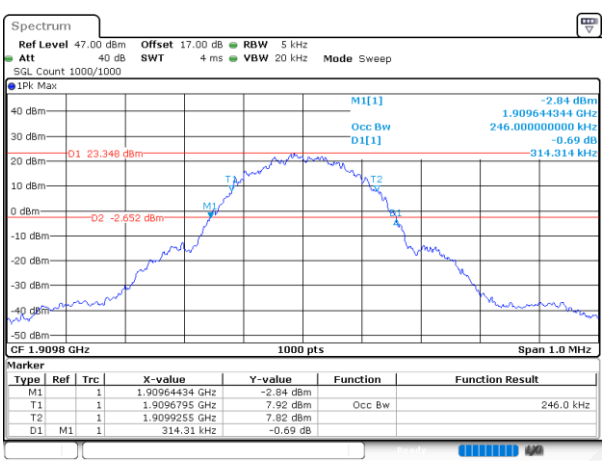
ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 21.AUG.2025 10:50:47

GPRS_Middle_GMSK



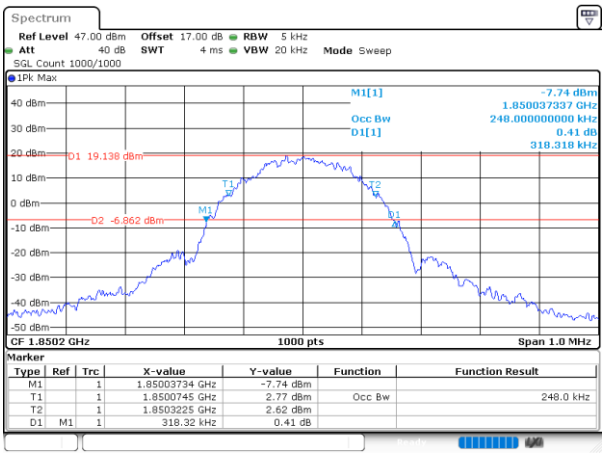
ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 21.AUG.2025 10:51:20

GPRS_High_GMSK



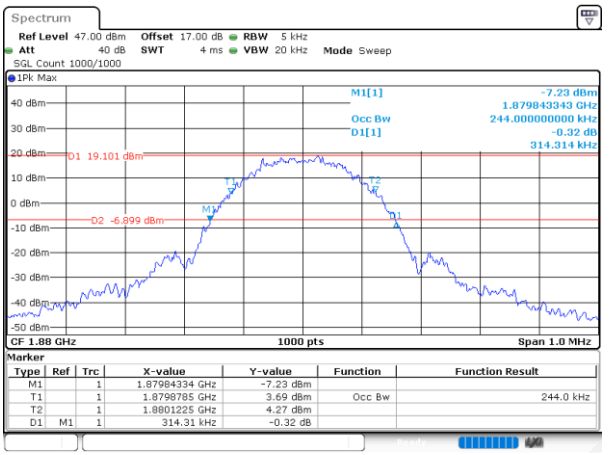
ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 21.AUG.2025 10:52:28

EDGE_Low_8PSK



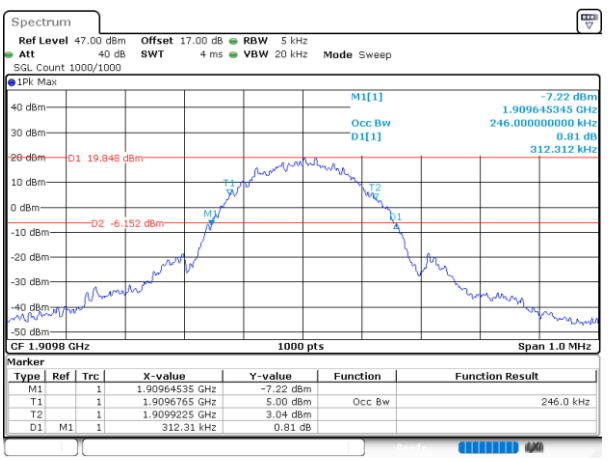
ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 21.AUG.2025 10:53:28

EDGE_Middle_8PSK



ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 21.AUG.2025 10:54:25

EDGE_High_8PSK



ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 21.AUG.2025 10:55:05

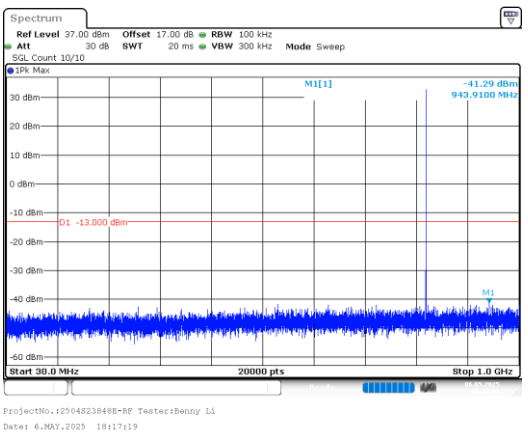
Spurious Emissions at Antenna Terminal

FCC Part 22H

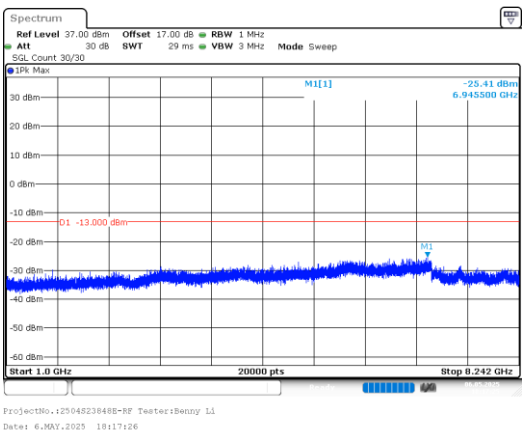
GSM 850, Normal

GSM_Low

Below 1G

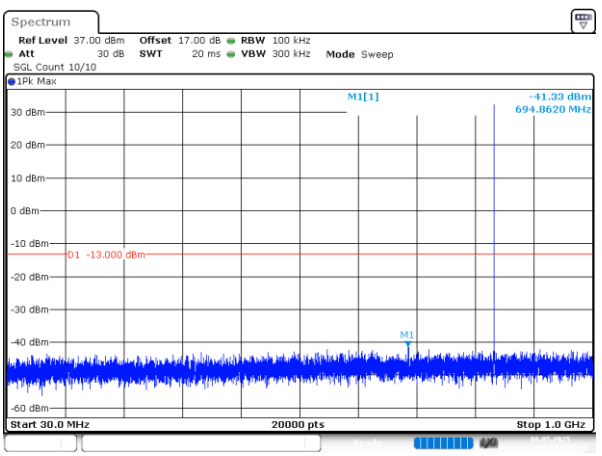


Above 1G

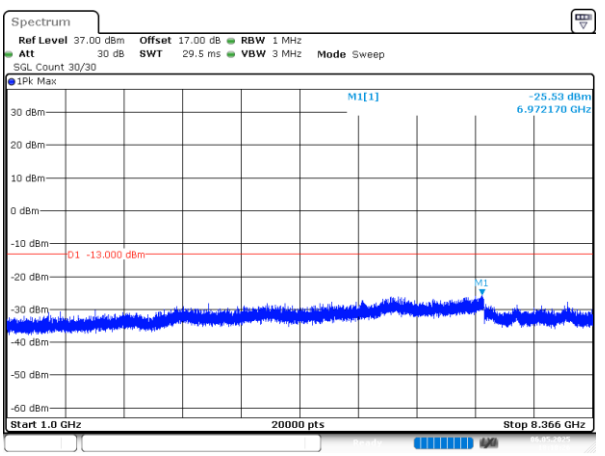


GSM_Middle

Below 1G

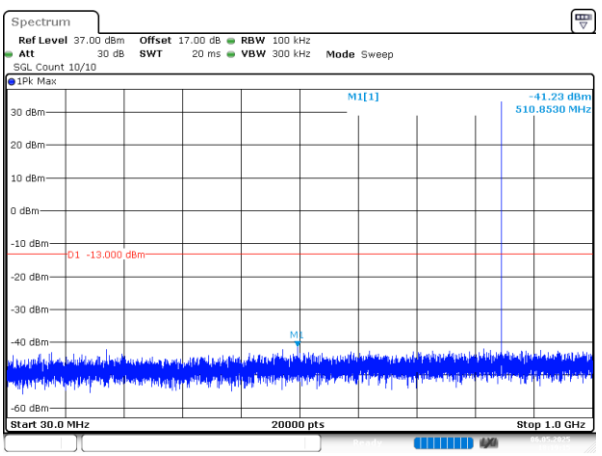


Above 1G

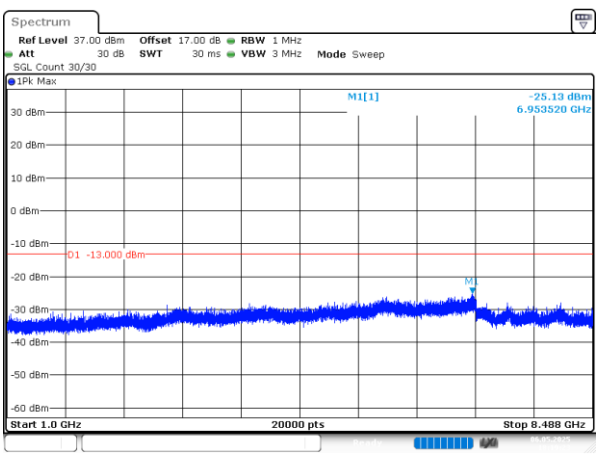


GSM_High

Below 1G

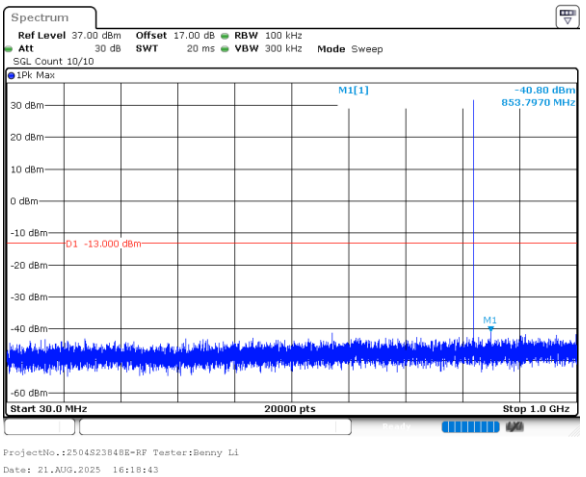


Above 1G

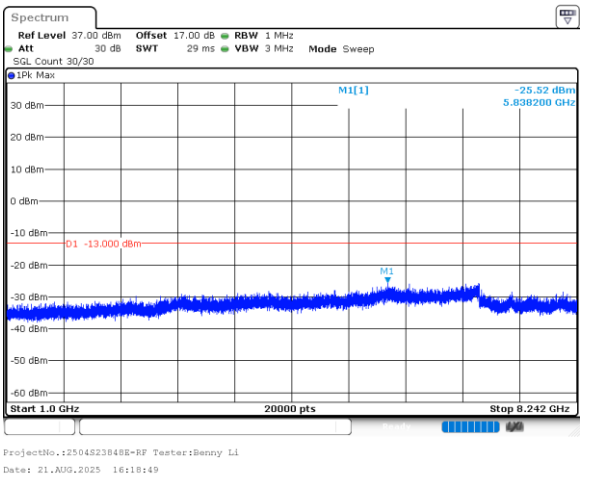


GPRS_Low_GMSK

Below 1G

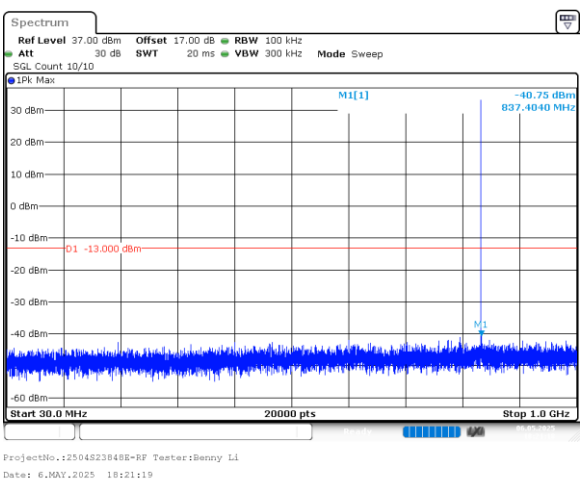


Above 1G

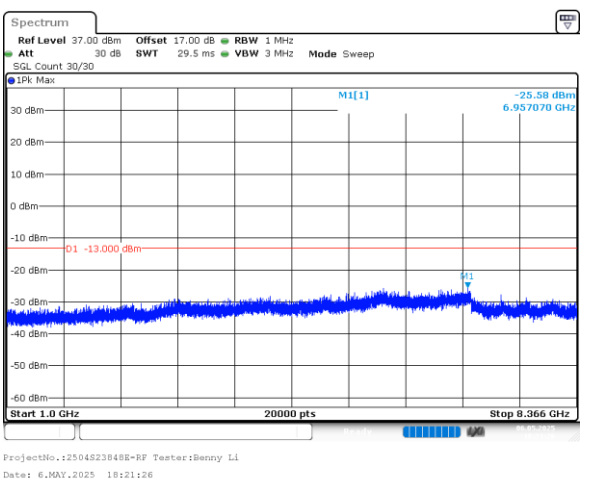


GPRS_Middle_GMSK

Below 1G

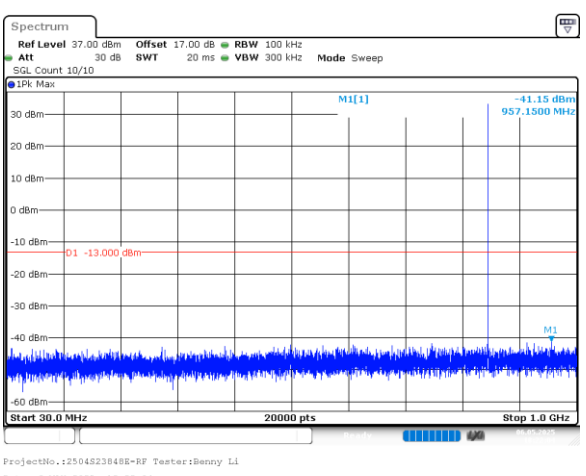


Above 1G

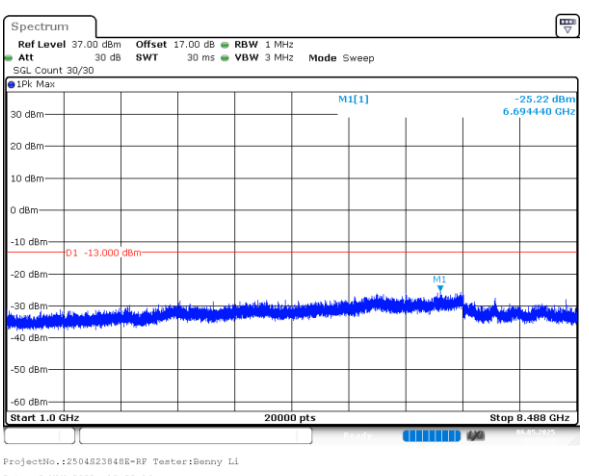


GPRS_High_GMSK

Below 1G

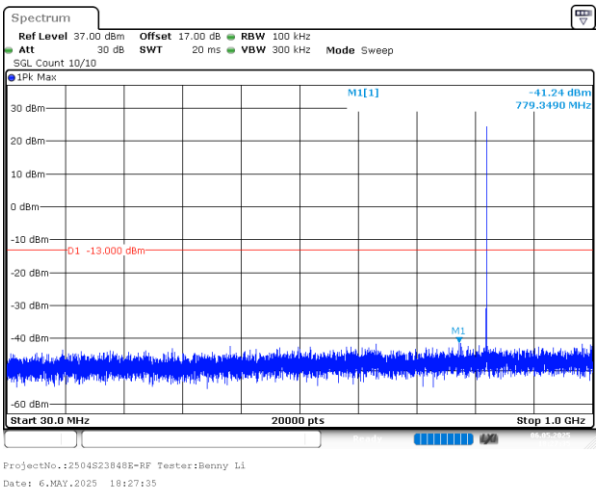


Above 1G



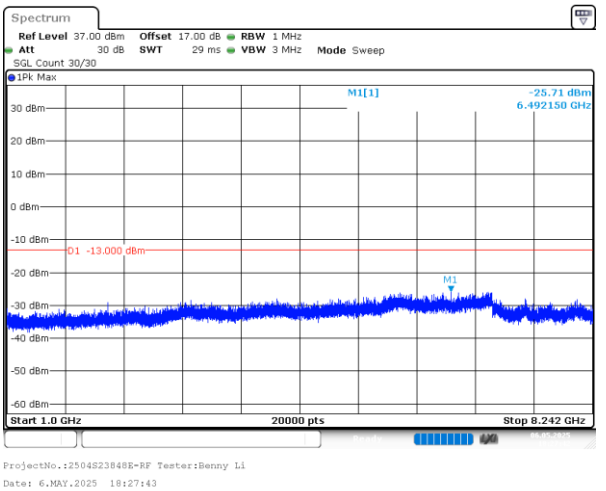
EDGE_Low_8PSK

Below 1G



ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 6.MAY.2025 18:27:35

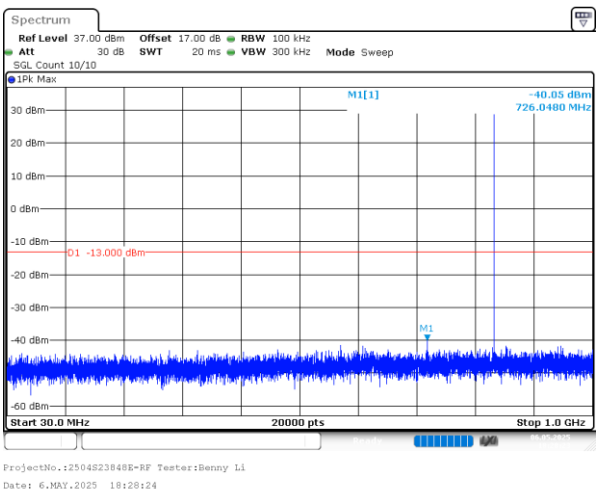
Above 1G



ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 6.MAY.2025 18:27:43

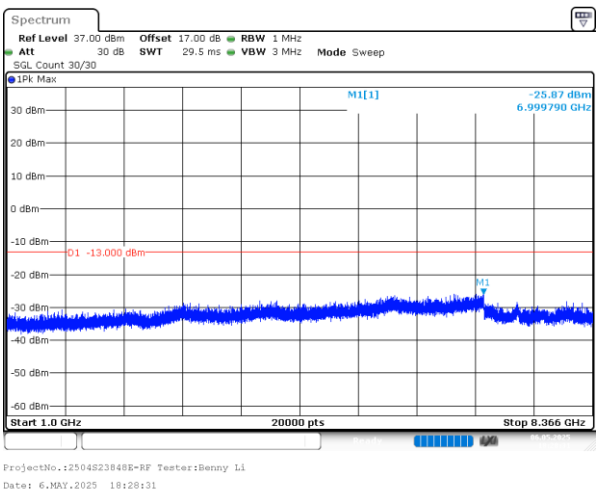
EDGE_Middle_8PSK

Below 1G



ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 6.MAY.2025 18:28:24

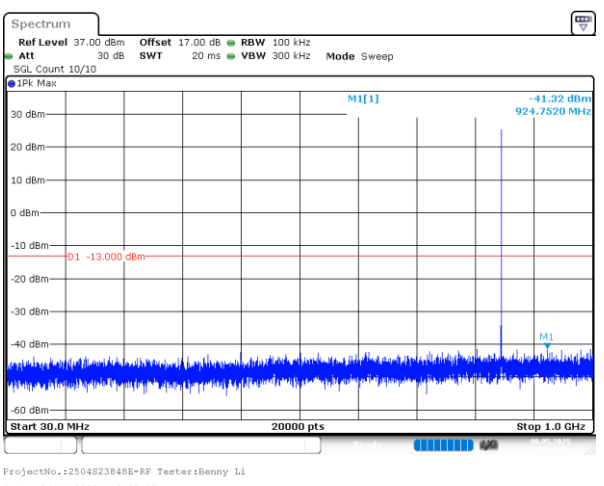
Above 1G



ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 6.MAY.2025 18:28:31

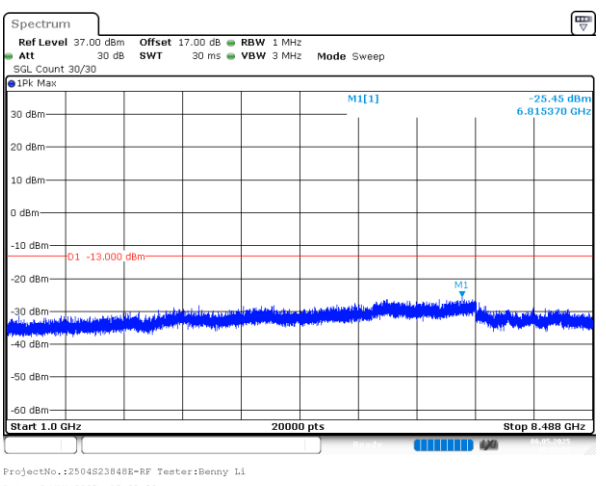
EDGE_High_8PSK

Below 1G



ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 6.MAY.2025 18:29:45

Above 1G



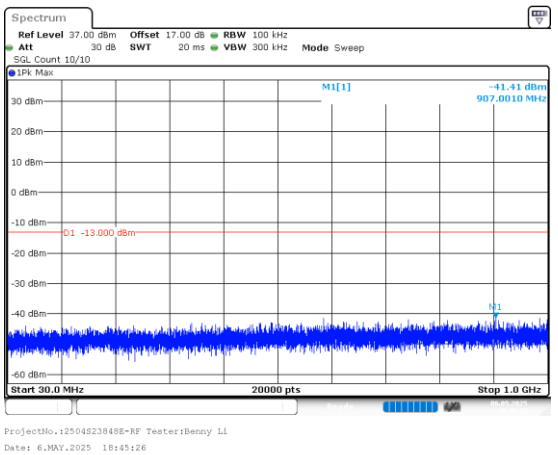
ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 6.MAY.2025 18:29:52

FCC Part 24E

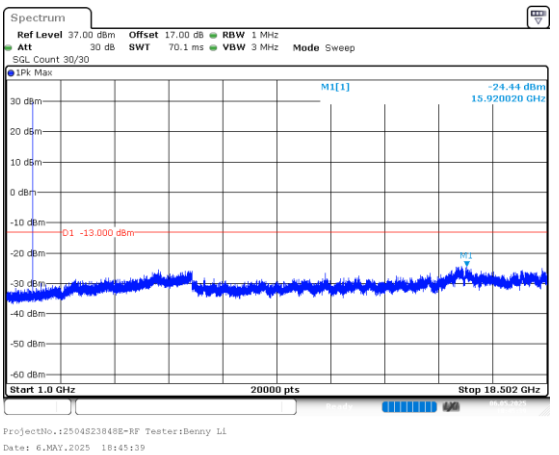
GSM 1900, Normal

GSM_Low

Below 1G

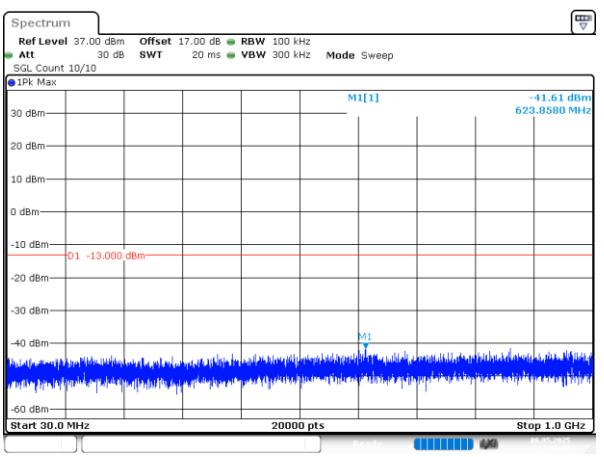


Above 1G

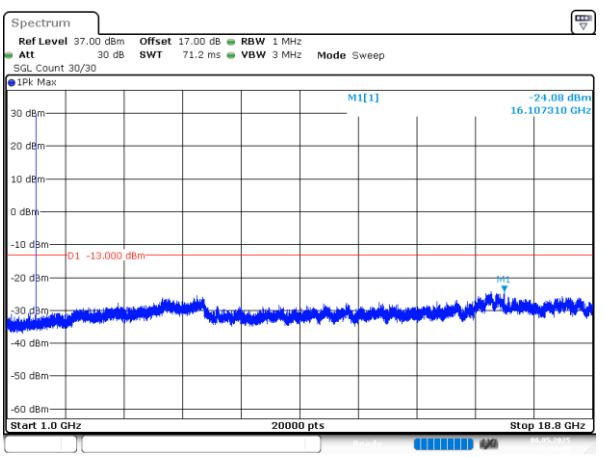


GSM_Middle

Below 1G

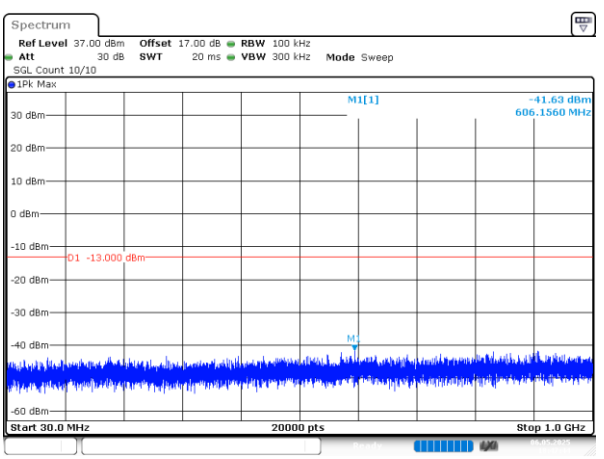


Above 1G

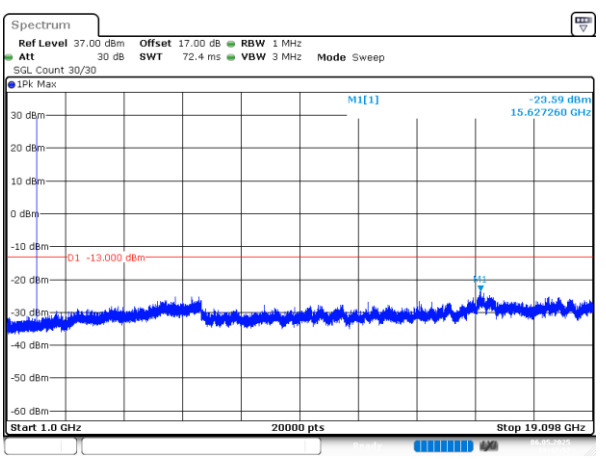


GSM_High

Below 1G

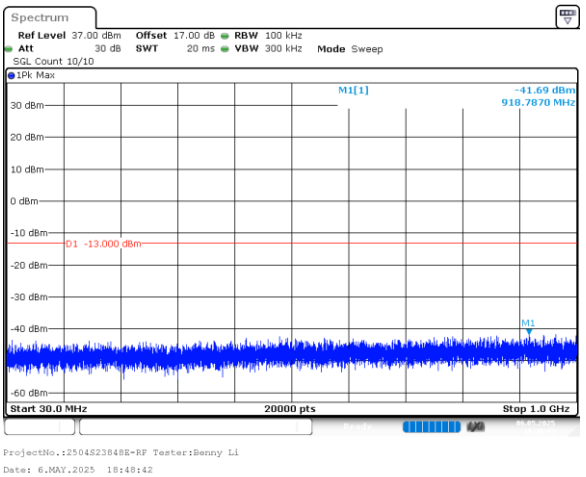


Above 1G



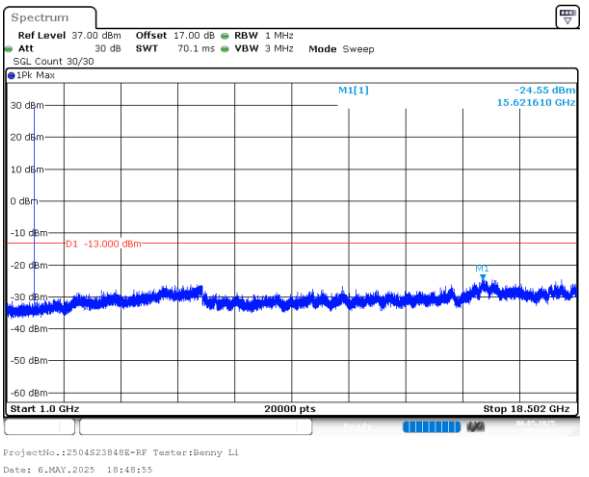
GPRS_Low_GMSK

Below 1G



ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 6.MAY.2025 18:48:42

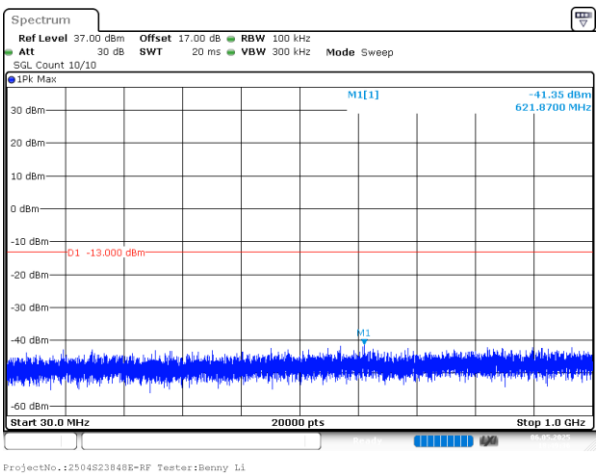
Above 1G



ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 6.MAY.2025 18:48:55

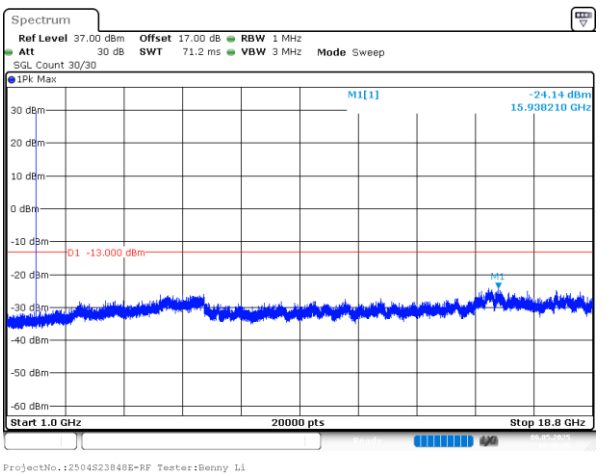
GPRS_Middle_GMSK

Below 1G



ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 6.MAY.2025 18:49:37

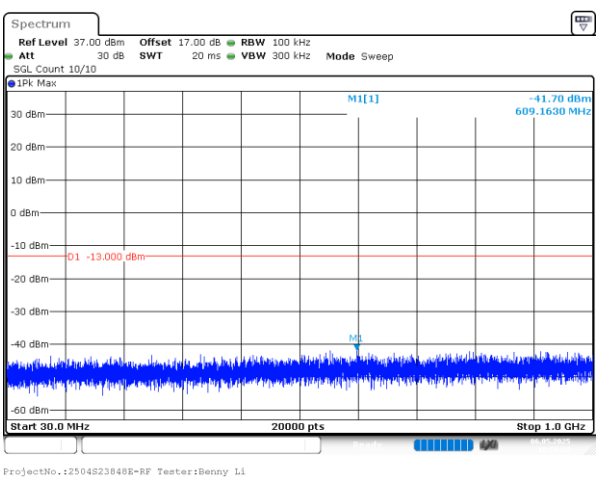
Above 1G



ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 6.MAY.2025 18:49:50

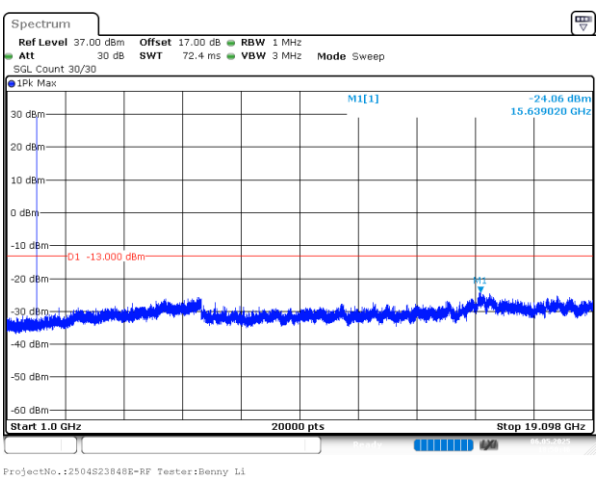
GPRS_High_GMSK

Below 1G



ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 6.MAY.2025 18:50:33

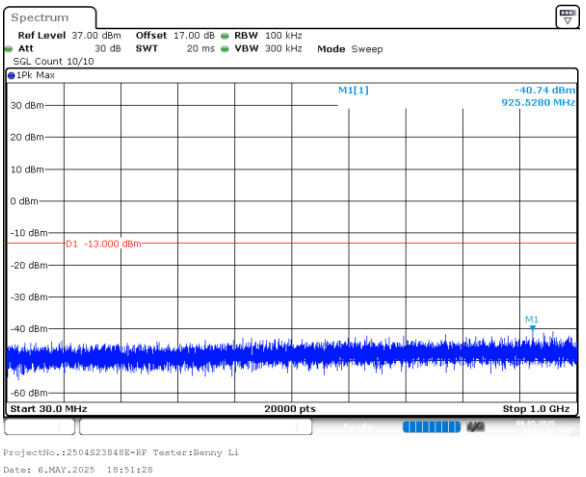
Above 1G



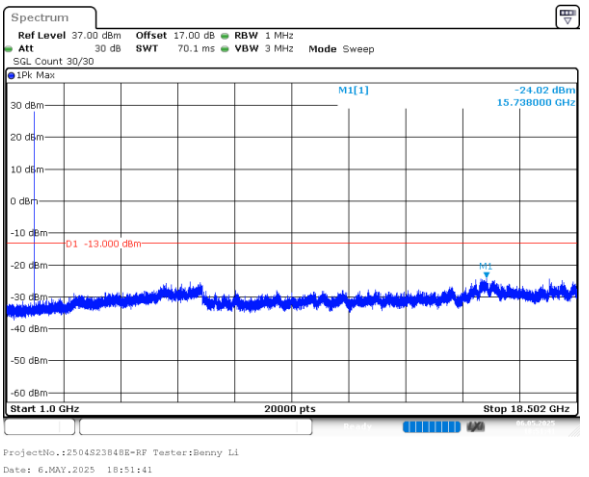
ProjectNo.:2504S23848E-RF Tester:Benny Li
Date: 6.MAY.2025 18:50:46

EDGE_Low_8PSK

Below 1G

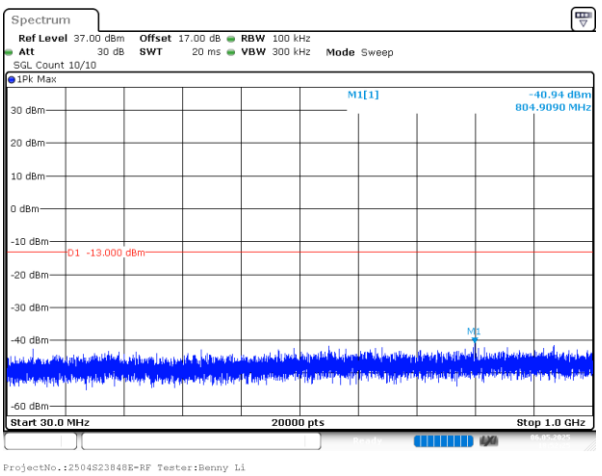


Above 1G

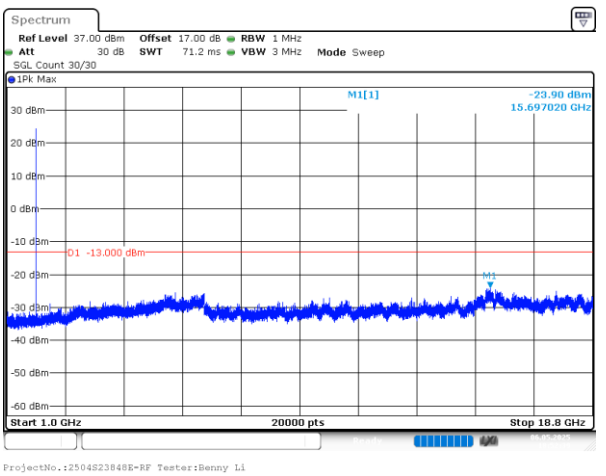


EDGE_Middle_8PSK

Below 1G

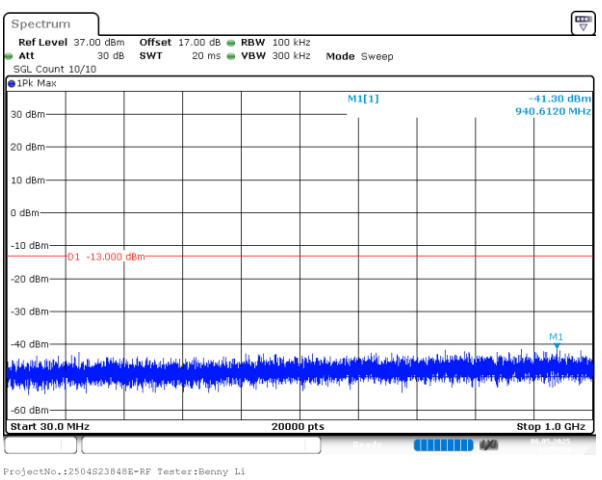


Above 1G

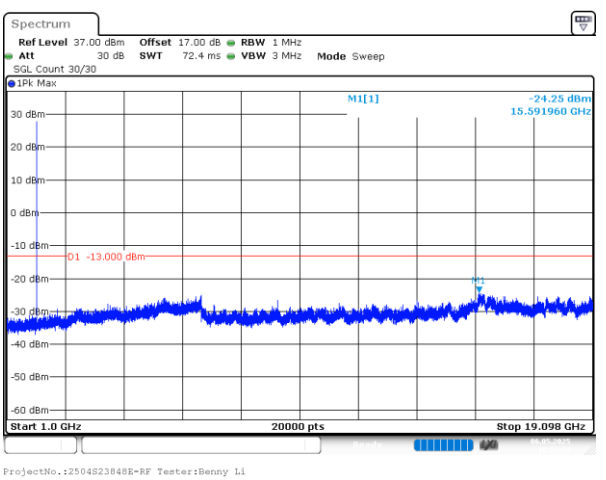


EDGE_High_8PSK

Below 1G



Above 1G

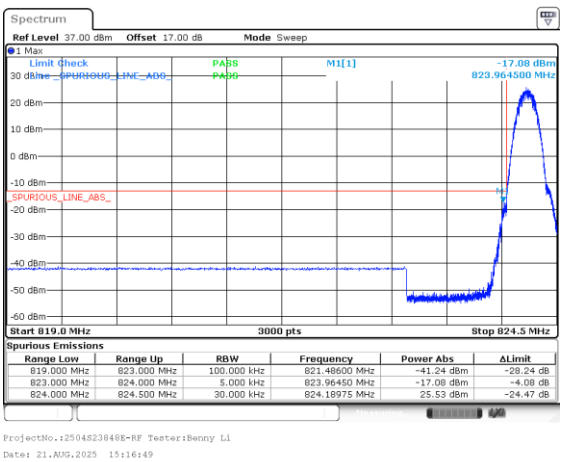


Out of band emission,Band Edge

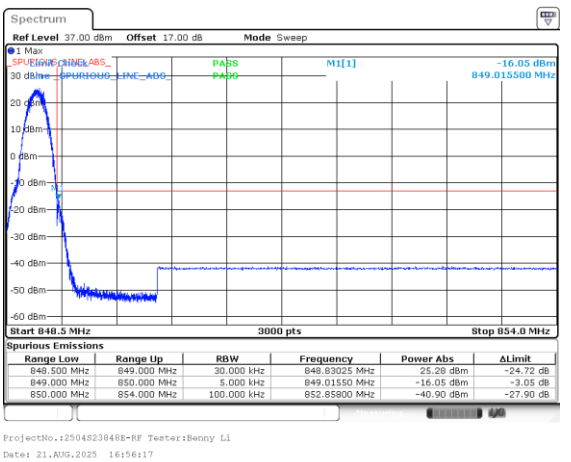
FCC Part 22H

GSM 850, Normal

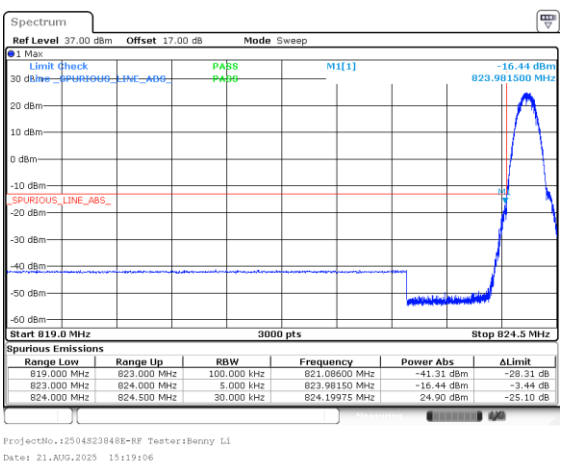
GSM_Low



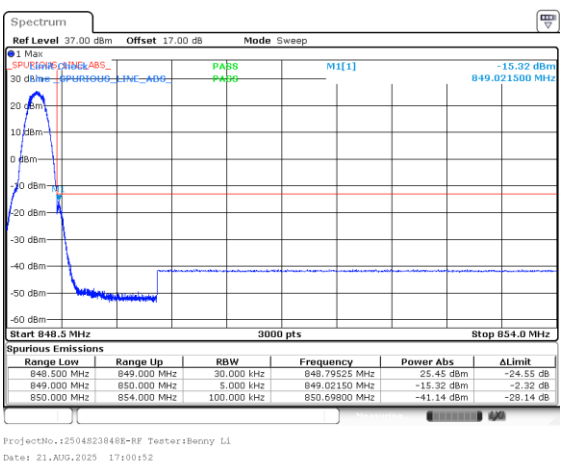
GSM_High



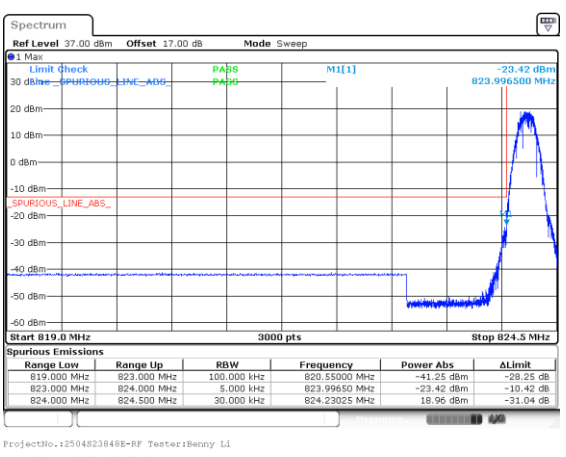
GPRS_Low_GMSK



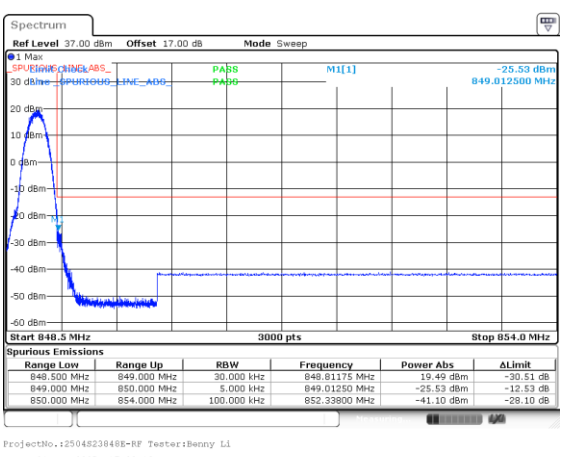
GPRS_High_GMSK



EDGE_Low_8PSK



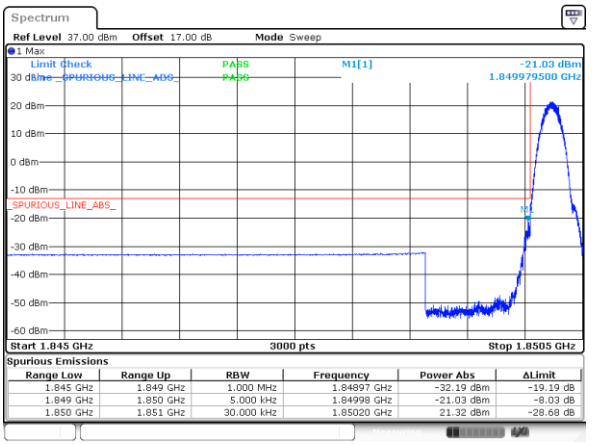
EDGE_High_8PSK



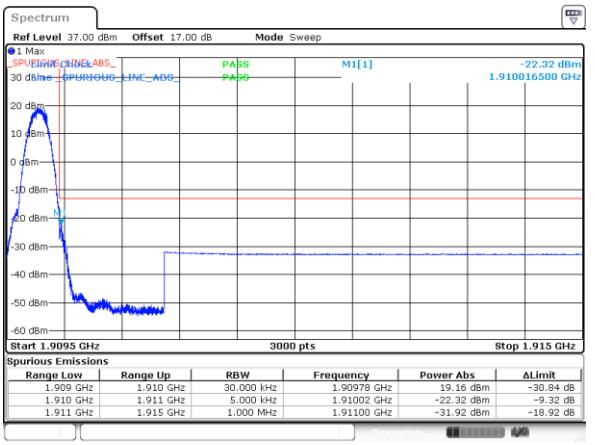
FCC Part 24E

GSM 1900, Normal

GSM_Low

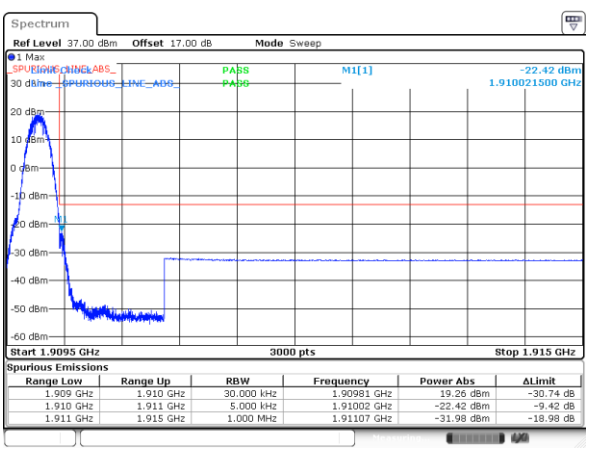


GSM_High

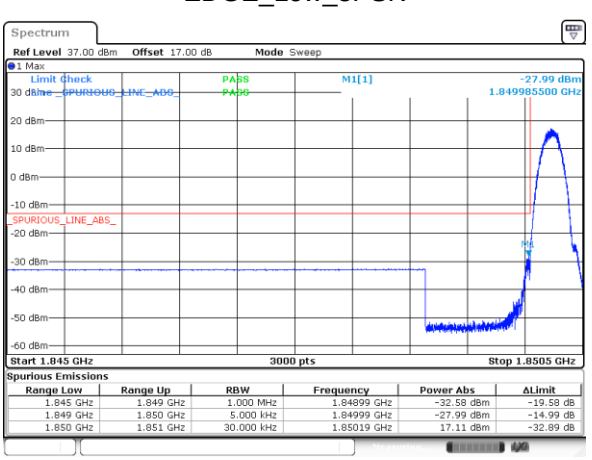


GPRS_Low_GMSK

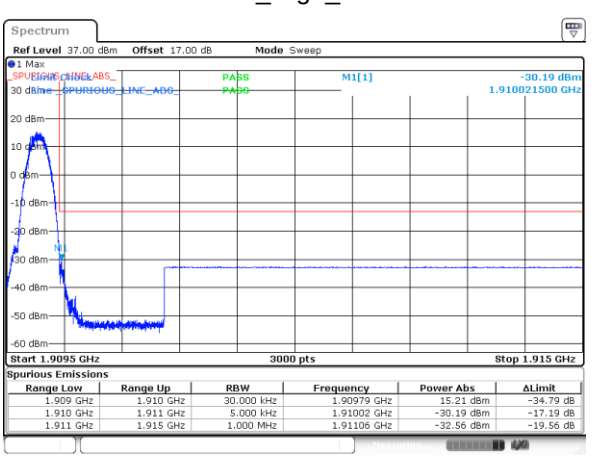
GPRS_High_GMSK



EDGE_Low_8PSK



EDGE_High_8PSK



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	0.7	0.0008	±2.5	Pass
GSM_Middle_T1/VN	836.6	-0.1	-0.0001	±2.5	Pass
GSM_Middle_T2/VN	836.6	-1.6	-0.0019	±2.5	Pass
GSM_Middle_T3/VN	836.6	-0.9	-0.0011	±2.5	Pass
GSM_Middle_T4/VN	836.6	0.6	0.0007	±2.5	Pass
GSM_Middle_T5/VN	836.6	-2.0	-0.0024	±2.5	Pass
GSM_Middle_T6/VN	836.6	-0.6	-0.0007	±2.5	Pass
GSM_Middle_T7/VN	836.6	0.7	0.0008	±2.5	Pass
GSM_Middle_T8/VN	836.6	1.3	0.0015	±2.5	Pass
GSM_Middle_TN/VH	836.6	-2.4	-0.0028	±2.5	Pass
GSM_Middle_TN/VL	836.6	-4.1	-0.0049	±2.5	Pass
GPRS_Middle_GMSK_TN/VN	836.6	0.7	0.0008	±2.5	Pass
GPRS_Middle_GMSK_T1/VN	836.6	-2.1	-0.0025	±2.5	Pass
GPRS_Middle_GMSK_T2/VN	836.6	1.4	0.0017	±2.5	Pass
GPRS_Middle_GMSK_T3/VN	836.6	1.0	0.0012	±2.5	Pass
GPRS_Middle_GMSK_T4/VN	836.6	-1.6	-0.0019	±2.5	Pass
GPRS_Middle_GMSK_T5/VN	836.6	-2.2	-0.0027	±2.5	Pass
GPRS_Middle_GMSK_T6/VN	836.6	-0.3	-0.0004	±2.5	Pass
GPRS_Middle_GMSK_T7/VN	836.6	-1.9	-0.0022	±2.5	Pass
GPRS_Middle_GMSK_T8/VN	836.6	-1.3	-0.0015	±2.5	Pass
GPRS_Middle_GMSK_TN/VH	836.6	1.7	0.0020	±2.5	Pass
GPRS_Middle_GMSK_TN/VL	836.6	-1.5	-0.0018	±2.5	Pass
EDGE_Middle_8PSK_TN/VN	836.6	-6.4	-0.0077	±2.5	Pass
EDGE_Middle_8PSK_T1/VN	836.6	-6.9	-0.0083	±2.5	Pass
EDGE_Middle_8PSK_T2/VN	836.6	-5.1	-0.0061	±2.5	Pass
EDGE_Middle_8PSK_T3/VN	836.6	-2.0	-0.0024	±2.5	Pass
EDGE_Middle_8PSK_T4/VN	836.6	-5.9	-0.0070	±2.5	Pass
EDGE_Middle_8PSK_T5/VN	836.6	-2.1	-0.0025	±2.5	Pass
EDGE_Middle_8PSK_T6/VN	836.6	-4.0	-0.0048	±2.5	Pass
EDGE_Middle_8PSK_T7/VN	836.6	-5.8	-0.0069	±2.5	Pass
EDGE_Middle_8PSK_T8/VN	836.6	1.1	0.0013	±2.5	Pass

Mode	Test Channel (MHz)	Frequency Error		Limit (ppm)	Verdict
		(Hz)	(ppm)		
EDGE_Middle_8PSK_TN/VH	836.6	-7.3	-0.0087	±2.5	Pass
EDGE_Middle_8PSK_TN/VL	836.6	-8.1	-0.0097	±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	1850.077	1850	Pass
GSM_Low_T1/VN	1850.079	1850	Pass
GSM_Low_T2/VN	1850.078	1850	Pass
GSM_Low_T3/VN	1850.078	1850	Pass
GSM_Low_T4/VN	1850.075	1850	Pass
GSM_Low_T5/VN	1850.078	1850	Pass
GSM_Low_T6/VN	1850.078	1850	Pass
GSM_Low_T7/VN	1850.079	1850	Pass
GSM_Low_T8/VN	1850.079	1850	Pass
GSM_Low_TN/VH	1850.075	1850	Pass
GSM_Low_TN/VL	1850.082	1850	Pass
GSM_High_TN/VN	1909.922	1910	Pass
GSM_High_T1/VN	1909.926	1910	Pass
GSM_High_T2/VN	1909.928	1910	Pass
GSM_High_T3/VN	1909.924	1910	Pass
GSM_High_T4/VN	1909.924	1910	Pass
GSM_High_T5/VN	1909.922	1910	Pass
GSM_High_T6/VN	1909.922	1910	Pass
GSM_High_T7/VN	1909.922	1910	Pass
GSM_High_T8/VN	1909.921	1910	Pass
GSM_High_TN/VH	1909.923	1910	Pass
GSM_High_TN/VL	1909.929	1910	Pass
GPRS_Low_GMSK_TN/VN	1850.079	1850	Pass
GPRS_Low_GMSK_T1/VN	1850.079	1850	Pass
GPRS_Low_GMSK_T2/VN	1850.079	1850	Pass
GPRS_Low_GMSK_T3/VN	1850.078	1850	Pass
GPRS_Low_GMSK_T4/VN	1850.079	1850	Pass
GPRS_Low_GMSK_T5/VN	1850.079	1850	Pass
GPRS_Low_GMSK_T6/VN	1850.080	1850	Pass
GPRS_Low_GMSK_T7/VN	1850.080	1850	Pass

Mode	Result (MHz)	Limit (MHz)	Verdict
GPRS_Low_GMSK_T8/VN	1850.077	1850	Pass
GPRS_Low_GMSK_TN/VH	1850.078	1850	Pass
GPRS_Low_GMSK_TN/VL	1850.080	1850	Pass
GPRS_High_GMSK_TN/VN	1909.925	1910	Pass
GPRS_High_GMSK_T1/VN	1909.925	1910	Pass
GPRS_High_GMSK_T2/VN	1909.922	1910	Pass
GPRS_High_GMSK_T3/VN	1909.924	1910	Pass
GPRS_High_GMSK_T4/VN	1909.924	1910	Pass
GPRS_High_GMSK_T5/VN	1909.924	1910	Pass
GPRS_High_GMSK_T6/VN	1909.920	1910	Pass
GPRS_High_GMSK_T7/VN	1909.924	1910	Pass
GPRS_High_GMSK_T8/VN	1909.924	1910	Pass
GPRS_High_GMSK_TN/VH	1909.926	1910	Pass
GPRS_High_GMSK_TN/VL	1909.926	1910	Pass
EDGE_Low_8PSK_TN/VN	1850.075	1850	Pass
EDGE_Low_8PSK_T1/VN	1850.078	1850	Pass
EDGE_Low_8PSK_T2/VN	1850.080	1850	Pass
EDGE_Low_8PSK_T3/VN	1850.075	1850	Pass
EDGE_Low_8PSK_T4/VN	1850.074	1850	Pass
EDGE_Low_8PSK_T5/VN	1850.071	1850	Pass
EDGE_Low_8PSK_T6/VN	1850.078	1850	Pass
EDGE_Low_8PSK_T7/VN	1850.079	1850	Pass
EDGE_Low_8PSK_T8/VN	1850.076	1850	Pass
EDGE_Low_8PSK_TN/VH	1850.079	1850	Pass
EDGE_Low_8PSK_TN/VL	1850.080	1850	Pass
EDGE_High_8PSK_TN/VN	1909.923	1910	Pass
EDGE_High_8PSK_T1/VN	1909.924	1910	Pass
EDGE_High_8PSK_T2/VN	1909.923	1910	Pass
EDGE_High_8PSK_T3/VN	1909.925	1910	Pass
EDGE_High_8PSK_T4/VN	1909.921	1910	Pass
EDGE_High_8PSK_T5/VN	1909.922	1910	Pass
EDGE_High_8PSK_T6/VN	1909.925	1910	Pass
EDGE_High_8PSK_T7/VN	1909.920	1910	Pass
EDGE_High_8PSK_T8/VN	1909.923	1910	Pass

Mode	Result (MHz)	Limit (MHz)	Verdict
EDGE_High_8PSK_TN/VH	1909.921	1910	Pass
EDGE_High_8PSK_TN/VL	1909.931	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 *****