

Appendix A

Test Information:

Serial No.:	2PWP-1	Test Date:	2024/08/29~2024/08/30
Test Site:	RF	Test Mode:	Transmitting
Tester:	Karl Liang	Test Result:	Pass

Environmental Conditions:

Temperature: (°C):	27.1~27.7	Relative Humidity: (%)	55	ATM Pressure: (kPa)	99.9~100.7
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101461	2023/11/27	2024/11/26
Micro-Coax	Coaxial Cable	UFB205A	323308-012	2024/01/02	2025/01/01
Minl-Clrucuits	Coaxial Power Splitters & Combiner	ZFRSC-183-S+	SF448201614	2024/02/25	2025/02/24
R&S	Wideband Radio Communication Tester	CMW500	144976	2023/10/18	2024/10/17
BACL	TEMP&HUMI Test Chamber	BTH-150-40	30173	2023/10/18	2024/10/17
All-sun	Clamp Meter	EM305A	8348897	2024/08/03	2025/08/02
TDK-Lambda	DC Power Supply	Z+60-14	F-08-EM038-1	N/A	N/A

* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

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

IC RSS 132

GSM 850

Mode	Value (MHz)	Limit (MHz)	Result
GSM_Low_TN/VN	824.046	824	Pass
GSM_Low_T1/VN	824.058	824	Pass
GSM_Low_T2/VN	824.073	824	Pass
GSM_Low_T3/VN	824.070	824	Pass
GSM_Low_T4/VN	824.061	824	Pass
GSM_Low_T5/VN	824.079	824	Pass
GSM_Low_T6/VN	824.085	824	Pass
GSM_Low_T7/VN	824.091	824	Pass
GSM_Low_T8/VN	824.100	824	Pass
GSM_Low_TN/VH	824.091	824	Pass
GSM_Low_TN/VL	824.106	824	Pass
GSM_High_TN/VN	848.911	849	Pass
GSM_High_T1/VN	848.914	849	Pass
GSM_High_T2/VN	848.905	849	Pass
GSM_High_T3/VN	848.914	849	Pass
GSM_High_T4/VN	848.899	849	Pass
GSM_High_T5/VN	848.923	849	Pass
GSM_High_T6/VN	848.944	849	Pass
GSM_High_T7/VN	848.947	849	Pass
GSM_High_T8/VN	848.950	849	Pass
GSM_High_TN/VH	848.926	849	Pass
GSM_High_TN/VL	848.926	849	Pass
EDGE_Low_Solt1_TN/VN	824.074	824	Pass
EDGE_Low_Solt1_T1/VN	824.062	824	Pass
EDGE_Low_Solt1_T2/VN	824.053	824	Pass
EDGE_Low_Solt1_T3/VN	824.056	824	Pass
EDGE_Low_Solt1_T4/VN	824.065	824	Pass
EDGE_Low_Solt1_T5/VN	824.080	824	Pass
EDGE_Low_Solt1_T6/VN	824.098	824	Pass
EDGE_Low_Solt1_T7/VN	824.098	824	Pass
EDGE_Low_Solt1_T8/VN	824.101	824	Pass
EDGE_Low_Solt1_TN/VH	824.107	824	Pass
EDGE_Low_Solt1_TN/VL	824.098	824	Pass
EDGE_High_Solt1_TN/VN	848.893	849	Pass
EDGE_High_Solt1_T1/VN	848.902	849	Pass
EDGE_High_Solt1_T2/VN	848.893	849	Pass

Mode	Value (MHz)	Limit (MHz)	Result
EDGE_High_Solt1_T3/VN	848.905	849	Pass
EDGE_High_Solt1_T4/VN	848.905	849	Pass
EDGE_High_Solt1_T5/VN	848.920	849	Pass
EDGE_High_Solt1_T6/VN	848.929	849	Pass
EDGE_High_Solt1_T7/VN	848.926	849	Pass
EDGE_High_Solt1_T8/VN	848.926	849	Pass
EDGE_High_Solt1_TN/VH	848.944	849	Pass
EDGE_High_Solt1_TN/VL	848.929	849	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.

IC RSS 133

GSM 1900

Mode	Test Channel (MHz)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Result
GSM_Middle_TN/VN	1880	-9.84	-0.005	±2.5	Pass
GSM_Middle_T1/VN	1880	3.94	0.002	±2.5	Pass
GSM_Middle_T2/VN	1880	-6.41	-0.003	±2.5	Pass
GSM_Middle_T3/VN	1880	-8.15	-0.004	±2.5	Pass
GSM_Middle_T4/VN	1880	-4.24	-0.002	±2.5	Pass
GSM_Middle_T5/VN	1880	5.42	0.003	±2.5	Pass
GSM_Middle_T6/VN	1880	-8.41	-0.004	±2.5	Pass
GSM_Middle_T7/VN	1880	-2.30	-0.001	±2.5	Pass
GSM_Middle_T8/VN	1880	-5.09	-0.003	±2.5	Pass
GSM_Middle_TN/VH	1880	8.61	0.005	±2.5	Pass
GSM_Middle_TN/VL	1880	-4.94	-0.003	±2.5	Pass
EDGE_Middle_Solt1_TN/VN	1880	9.83	0.005	±2.5	Pass
EDGE_Middle_Solt1_T1/VN	1880	-6.63	-0.004	±2.5	Pass
EDGE_Middle_Solt1_T2/VN	1880	2.29	0.001	±2.5	Pass
EDGE_Middle_Solt1_T3/VN	1880	-3.17	-0.002	±2.5	Pass
EDGE_Middle_Solt1_T4/VN	1880	-4.21	-0.002	±2.5	Pass
EDGE_Middle_Solt1_T5/VN	1880	3.42	0.002	±2.5	Pass
EDGE_Middle_Solt1_T6/VN	1880	-5.14	-0.003	±2.5	Pass
EDGE_Middle_Solt1_T7/VN	1880	-9.07	-0.005	±2.5	Pass
EDGE_Middle_Solt1_T8/VN	1880	1.68	0.001	±2.5	Pass
EDGE_Middle_Solt1_TN/VH	1880	-6.54	-0.003	±2.5	Pass
EDGE_Middle_Solt1_TN/VL	1880	-6.08	-0.003	±2.5	Pass

Note:
Frequency Error (ppm)=Frequency Error (Hz)/Test Channel (MHz)
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 22H

GSM 850

Mode	Test Channel (MHz)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Result
GSM_Middle_TN/VN	836.6	3.4	0.004	±2.5	Pass
GSM_Middle_T1/VN	836.6	4.5	0.005	±2.5	Pass
GSM_Middle_T2/VN	836.6	4.3	0.005	±2.5	Pass
GSM_Middle_T3/VN	836.6	3.6	0.004	±2.5	Pass
GSM_Middle_T4/VN	836.6	8.2	0.010	±2.5	Pass
GSM_Middle_T5/VN	836.6	7.2	0.009	±2.5	Pass
GSM_Middle_T6/VN	836.6	4.8	0.006	±2.5	Pass
GSM_Middle_T7/VN	836.6	7.3	0.009	±2.5	Pass
GSM_Middle_T8/VN	836.6	2.7	0.003	±2.5	Pass
GSM_Middle_TN/VH	836.6	8.9	0.011	±2.5	Pass
GSM_Middle_TN/VL	836.6	6.1	0.007	±2.5	Pass
EDGE_Middle_Solt1_TN/VN	836.6	15.3	0.018	±2.5	Pass
EDGE_Middle_Solt1_T1/VN	836.6	15.2	0.018	±2.5	Pass
EDGE_Middle_Solt1_T2/VN	836.6	13.1	0.016	±2.5	Pass
EDGE_Middle_Solt1_T3/VN	836.6	10.8	0.013	±2.5	Pass
EDGE_Middle_Solt1_T4/VN	836.6	9.5	0.011	±2.5	Pass
EDGE_Middle_Solt1_T5/VN	836.6	12.7	0.015	±2.5	Pass
EDGE_Middle_Solt1_T6/VN	836.6	9.5	0.011	±2.5	Pass
EDGE_Middle_Solt1_T7/VN	836.6	10.4	0.012	±2.5	Pass
EDGE_Middle_Solt1_T8/VN	836.6	13.0	0.016	±2.5	Pass
EDGE_Middle_Solt1_TN/VH	836.6	9.1	0.011	±2.5	Pass
EDGE_Middle_Solt1_TN/VL	836.6	10.0	0.012	±2.5	Pass

Note:
Frequency Error (ppm)=Frequency Error (Hz)/Test Channel(MHz)
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	Value (MHz)	Limit (MHz)	Result
GSM_Low_TN/VN	1850.081	1850	Pass
GSM_Low_T1/VN	1850.079	1850	Pass
GSM_Low_T2/VN	1850.078	1850	Pass
GSM_Low_T3/VN	1850.080	1850	Pass
GSM_Low_T4/VN	1850.082	1850	Pass
GSM_Low_T5/VN	1850.080	1850	Pass
GSM_Low_T6/VN	1850.080	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	1909.919	1910	Pass
GSM_High_T2/VN	1909.923	1910	Pass
GSM_High_T3/VN	1909.924	1910	Pass
GSM_High_T4/VN	1909.926	1910	Pass
GSM_High_T5/VN	1909.922	1910	Pass
GSM_High_T6/VN	1909.926	1910	Pass
GSM_High_T7/VN	1909.922	1910	Pass
GSM_High_T8/VN	1909.921	1910	Pass
GSM_High_TN/VH	1909.926	1910	Pass
GSM_High_TN/VL	1909.924	1910	Pass
EDGE_Low_Solt1_TN/VN	1850.076	1850	Pass
EDGE_Low_Solt1_T1/VN	1850.085	1850	Pass
EDGE_Low_Solt1_T2/VN	1850.080	1850	Pass
EDGE_Low_Solt1_T3/VN	1850.080	1850	Pass
EDGE_Low_Solt1_T4/VN	1850.079	1850	Pass
EDGE_Low_Solt1_T5/VN	1850.081	1850	Pass
EDGE_Low_Solt1_T6/VN	1850.084	1850	Pass
EDGE_Low_Solt1_T7/VN	1850.078	1850	Pass
EDGE_Low_Solt1_T8/VN	1850.081	1850	Pass
EDGE_Low_Solt1_TN/VH	1850.080	1850	Pass
EDGE_Low_Solt1_TN/VL	1850.080	1850	Pass
EDGE_High_Solt1_TN/VN	1909.925	1910	Pass
EDGE_High_Solt1_T1/VN	1909.921	1910	Pass
EDGE_High_Solt1_T2/VN	1909.919	1910	Pass

Mode	Value (MHz)	Limit (MHz)	Result
EDGE_High_Solt1_T3/VN	1909.924	1910	Pass
EDGE_High_Solt1_T4/VN	1909.922	1910	Pass
EDGE_High_Solt1_T5/VN	1909.922	1910	Pass
EDGE_High_Solt1_T6/VN	1909.920	1910	Pass
EDGE_High_Solt1_T7/VN	1909.924	1910	Pass
EDGE_High_Solt1_T8/VN	1909.926	1910	Pass
EDGE_High_Solt1_TN/VH	1909.923	1910	Pass
EDGE_High_Solt1_TN/VL	1909.923	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.

Occupied Bandwidth

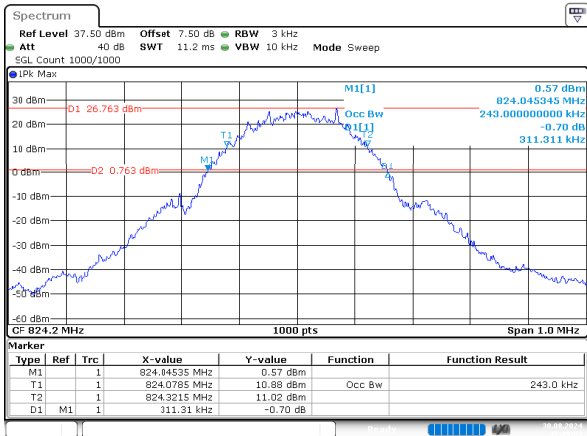
FCC Part 22H&IC RSS 132

GSM 850 , Normal

Mode	99% OBW (MHz)	EBW (MHz)
GSM_Low	0.243	0.311
GSM_Middle	0.243	0.313
GSM_High	0.243	0.315
EDGE_Low_Solt1	0.244	0.317
EDGE_Middle_Solt1	0.242	0.305
EDGE_High_Solt1	0.240	0.307

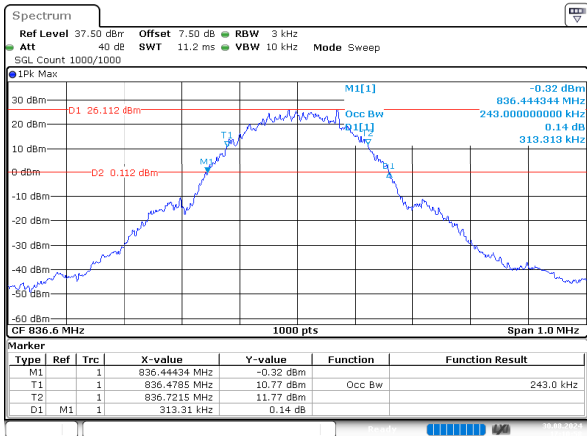
GSM 850 , Normal

GSM_Low 0.243MHz



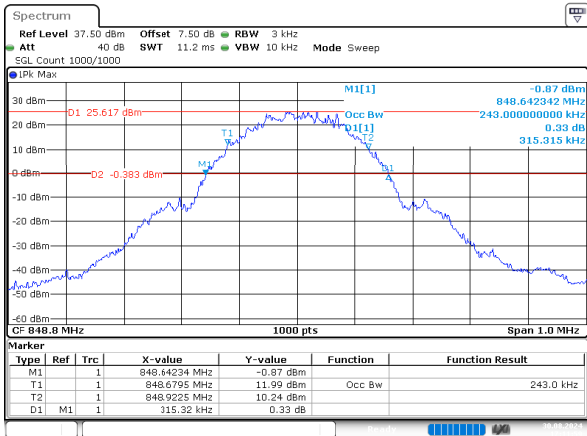
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GSM_Middle 0.243MHz



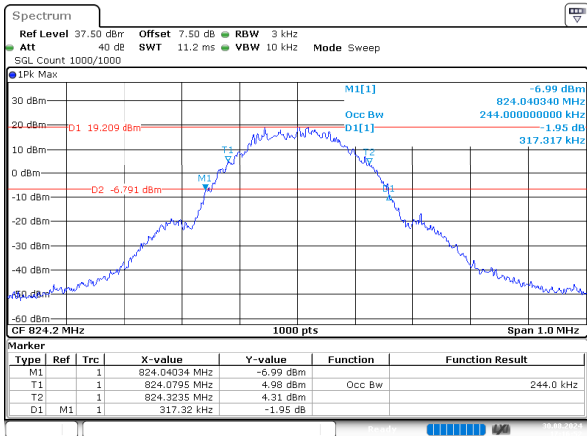
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GSM_High 0.243MHz



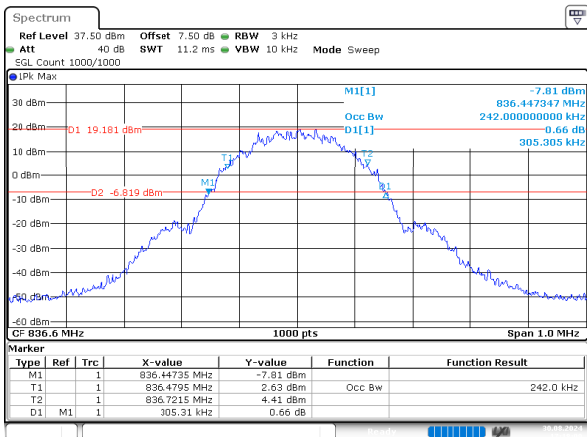
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EDGE_Low_Solt1 0.244MHz



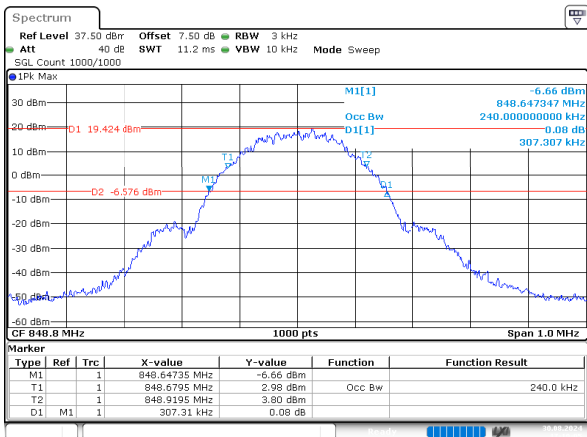
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EDGE_Middle_Solt1 0.242MHz



ProjectNo.:2402W28519E-RF Tester:Karl Liang
Date: 30.AUG.2024 17:18:09

EDGE_High_Solt1 0.240MHz



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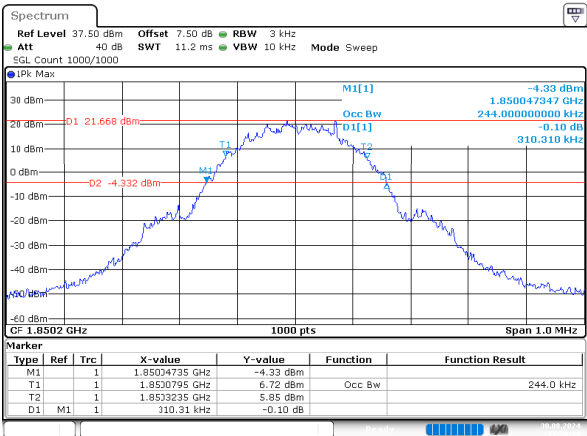
FCC Part 24E&IC RSS 133

GSM 1900 , Normal

Mode	99% OBW (MHz)	EBW (MHz)
GSM_Low	0.244	0.310
GSM_Middle	0.245	0.311
GSM_High	0.244	0.314
EDGE_Low_Solt1	0.236	0.310
EDGE_Middle_Solt1	0.242	0.307
EDGE_High_Solt1	0.241	0.302

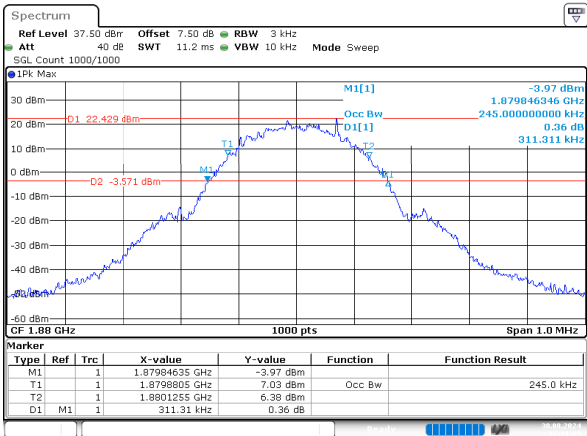
GSM 1900 , Normal

GSM_Low 0.244MHz



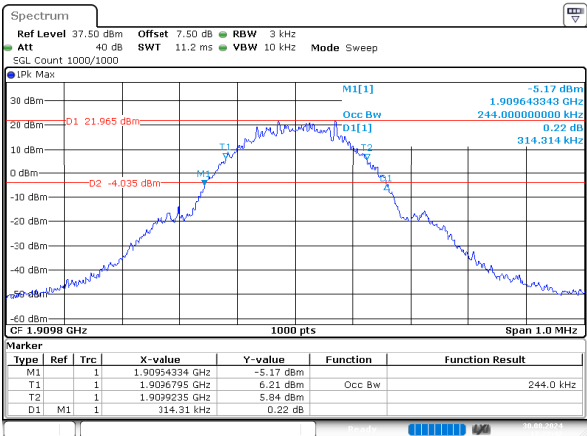
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GSM_Middle 0.245MHz



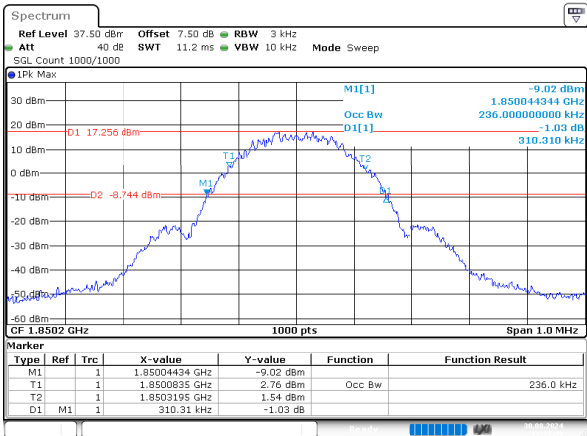
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GSM_High 0.244MHz



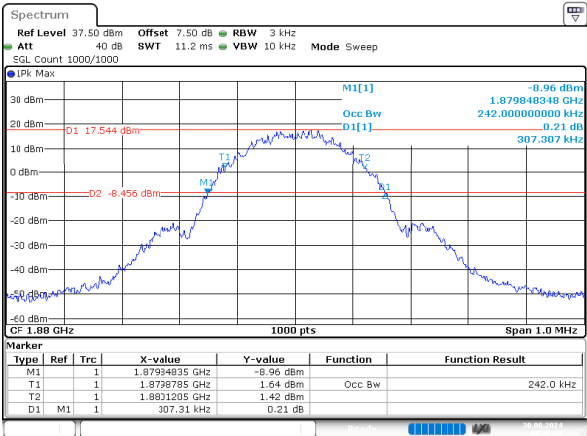
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EDGE_Low_Solt1 0.236MHz



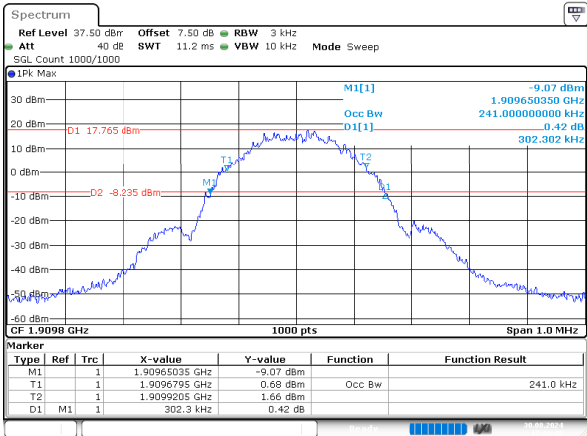
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EDGE_Middle_Solt1 0.242MHz



ProjectNo.:2402W28519E-RF Tester:Karl Liang
Date: 30.AUG.2024 17:28:41

EDGE_High_Solt1 0.241MHz



ProjectNo.:2402W28519E-RF Tester:Karl Liang
Date: 30.AUG.2024 17:29:41

RF Output Power

FCC Part 22H& IC RSS 132

GSM 850 , Normal

Mode	Peak Conducted Power(dBm)	ERP (dBm)	Limit(dBm)	Result
GSM_Low	33.35	30.78	38.45	Pass
GSM_Middle	33.32	30.75	38.45	Pass
GSM_High	33.23	30.66	38.45	Pass
GPRS_Low_Solt1	33.38	30.81	38.45	Pass
GPRS_Low_Solt2	31.14	28.57	38.45	Pass
GPRS_Low_Solt3	29.52	26.95	38.45	Pass
GPRS_Low_Solt4	27.40	24.83	38.45	Pass
GPRS_Middle_Solt1	33.39	30.82	38.45	Pass
GPRS_Middle_Solt2	30.92	28.35	38.45	Pass
GPRS_Middle_Solt3	29.27	26.70	38.45	Pass
GPRS_Middle_Solt4	27.19	24.62	38.45	Pass
GPRS_High_Solt1	33.30	30.73	38.45	Pass
GPRS_High_Solt2	30.62	28.05	38.45	Pass
GPRS_High_Solt3	28.96	26.39	38.45	Pass
GPRS_High_Solt4	26.95	24.38	38.45	Pass
EDGE_Low_Solt1	26.33	23.76	38.45	Pass
EDGE_Low_Solt2	25.05	22.48	38.45	Pass
EDGE_Low_Solt3	22.84	20.27	38.45	Pass
EDGE_Low_Solt4	20.44	17.87	38.45	Pass
EDGE_Middle_Solt1	26.01	23.44	38.45	Pass
EDGE_Middle_Solt2	24.80	22.23	38.45	Pass
EDGE_Middle_Solt3	22.48	19.91	38.45	Pass
EDGE_Middle_Solt4	20.14	17.57	38.45	Pass
EDGE_High_Solt1	26.03	23.46	38.45	Pass
EDGE_High_Solt2	24.89	22.32	38.45	Pass
EDGE_High_Solt3	22.41	19.84	38.45	Pass
EDGE_High_Solt4	19.96	17.39	38.45	Pass

Note:

ERP = Conducted Power(dBm) - L_C(dB) + G_T(dBd)

G_T(dBd) = G_T(dBi) - 2.15

1.Ant Gain = -0.32dBi;

2.C_L = signal attenuation in the connecting cable between the transmitter and antenna in 0.1dB

FCC Part 24E& IC RSS 133

GSM 1900 , Normal

Mode	Peak Conducted Power(dBm)	EIRP (dBm)	Limit(dBm)	Result
GSM_Low	29.32	29.55	33	Pass
GSM_Middle	29.34	29.57	33	Pass
GSM_High	29.10	29.33	33	Pass
GPRS_Low_Solt1	29.39	29.62	33	Pass
GPRS_Low_Solt2	27.04	27.27	33	Pass
GPRS_Low_Solt3	25.38	25.61	33	Pass
GPRS_Low_Solt4	23.36	23.59	33	Pass
GPRS_Middle_Solt1	29.39	29.62	33	Pass
GPRS_Middle_Solt2	26.73	26.96	33	Pass
GPRS_Middle_Solt3	25.02	25.25	33	Pass
GPRS_Middle_Solt4	23.02	23.25	33	Pass
GPRS_High_Solt1	29.21	29.44	33	Pass
GPRS_High_Solt2	26.48	26.71	33	Pass
GPRS_High_Solt3	24.74	24.97	33	Pass
GPRS_High_Solt4	22.65	22.88	33	Pass
EDGE_Low_Solt1	25.03	25.26	33	Pass
EDGE_Low_Solt2	22.99	23.22	33	Pass
EDGE_Low_Solt3	20.74	20.97	33	Pass
EDGE_Low_Solt4	18.45	18.68	33	Pass
EDGE_Middle_Solt1	25.02	25.25	33	Pass
EDGE_Middle_Solt2	23.23	23.46	33	Pass
EDGE_Middle_Solt3	21.01	21.24	33	Pass
EDGE_Middle_Solt4	18.51	18.74	33	Pass
EDGE_High_Solt1	24.71	24.94	33	Pass
EDGE_High_Solt2	22.85	23.08	33	Pass
EDGE_High_Solt3	20.92	21.15	33	Pass
EDGE_High_Solt4	19.03	19.26	33	Pass

Note:
EIRP = Conducted Power(dBm) - L_C(dB) + G_T(dBd)
1.Ant Gain = 0.23dBi;
2.C_L = signal attenuation in the connecting cable between the transmitter and antenna in 0dB

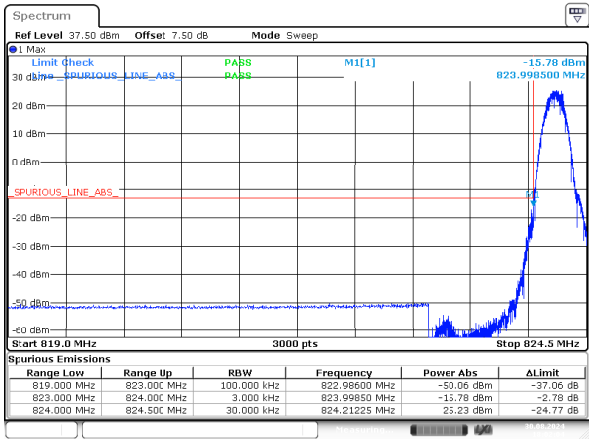
Out of band emission, Band Edge

FCC Part 22H& IC RSS 132

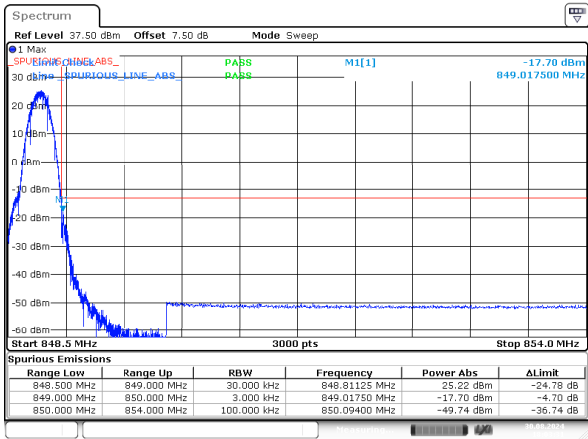
GSM 850 , Normal

GSM_Low -15.78dBm

GSM_High -17.70dBm



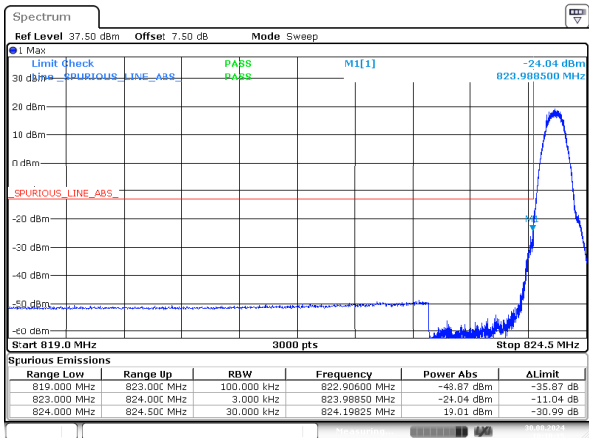
ProjectNo.:2402W28519E-RF Tester:Karl Liang
Date: 30.AUG.2024 18:02:04



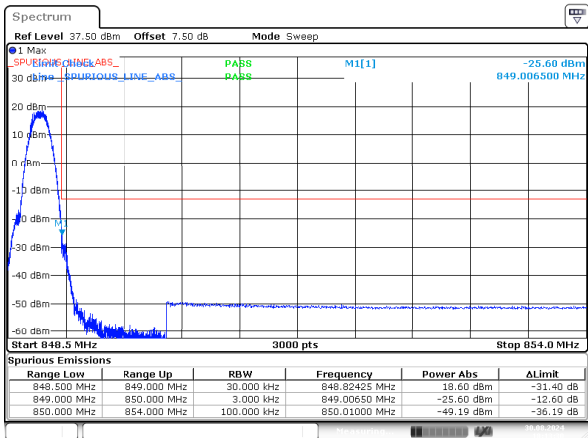
ProjectNo.:2402W28519E-RF Tester:Karl Liang
Date: 30.AUG.2024 18:03:31

EDGE_Low_Solt1 -24.04dBm

EDGE_High_Solt1 -25.60dBm



ProjectNo.:2402W28519E-RF Tester:Karl Liang
Date: 30.AUG.2024 18:10:15

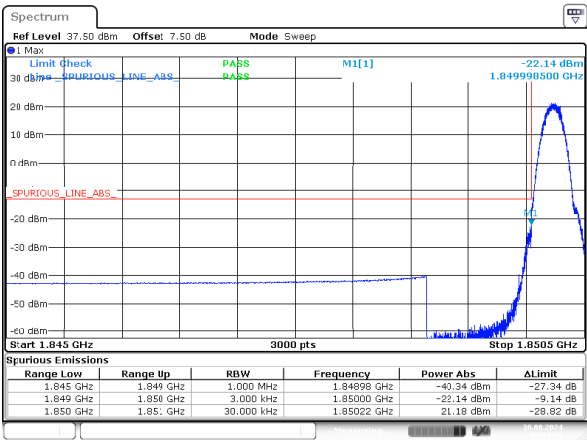


ProjectNo.:2402W28519E-RF Tester:Karl Liang
Date: 30.AUG.2024 18:13:30

FCC Part 24E& IC RSS 133

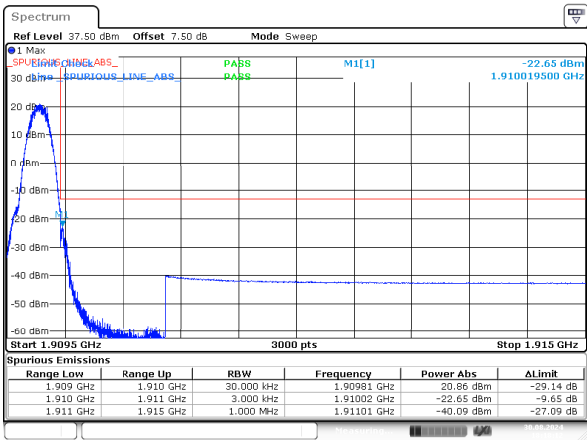
GSM 1900 , Normal

GSM_Low -22.14dBm



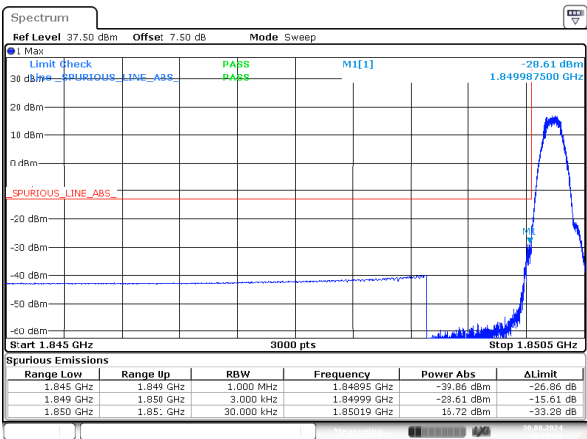
ProjectNo.:2402W28519E-RF Tester:Karl Liang
Date: 30.AUG.2024 18:15:56

GSM_High -22.65dBm



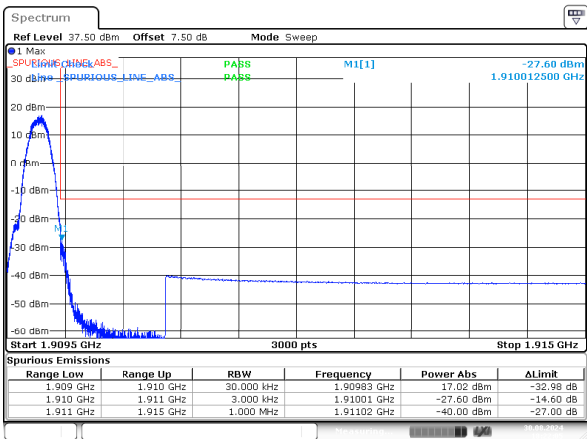
ProjectNo.:2402W28519E-RF Tester:Karl Liang
Date: 30.AUG.2024 18:18:12

EDGE_Low_Solt1 -28.61dBm



ProjectNo.:2402W28519E-RF Tester:Karl Liang
Date: 30.AUG.2024 18:20:11

EDGE_High_Solt1 -27.60dBm



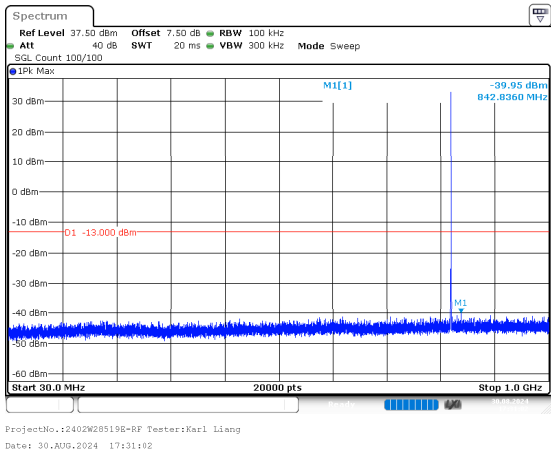
ProjectNo.:2402W28519E-RF Tester:Karl Liang
Date: 30.AUG.2024 18:22:05

Spurious Emissions at Antenna Terminal

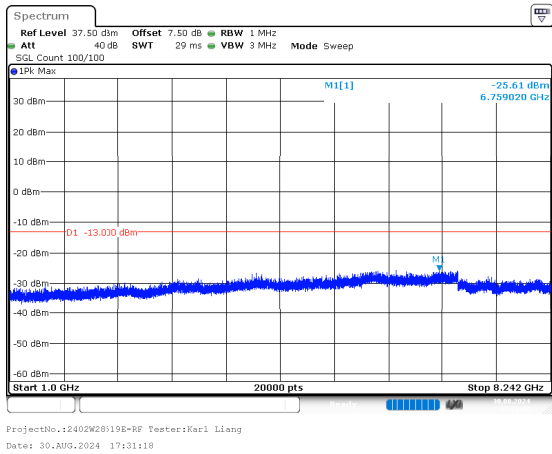
FCC Part 22H& IC RSS 132
GSM 850 , Normal

GSM_Low

Below 1G

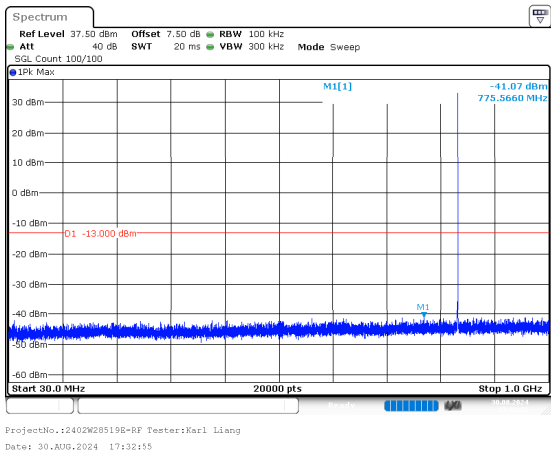


Above 1G

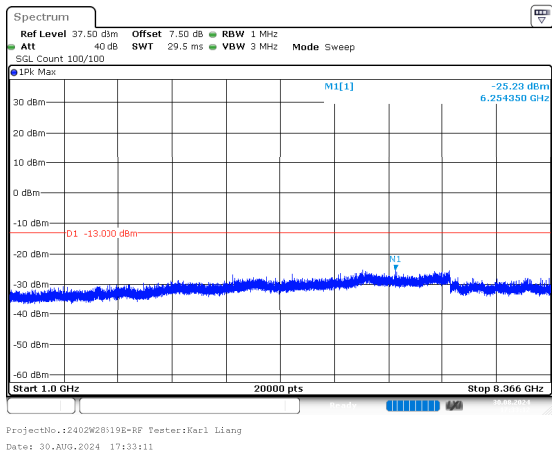


GSM_Middle

Below 1G



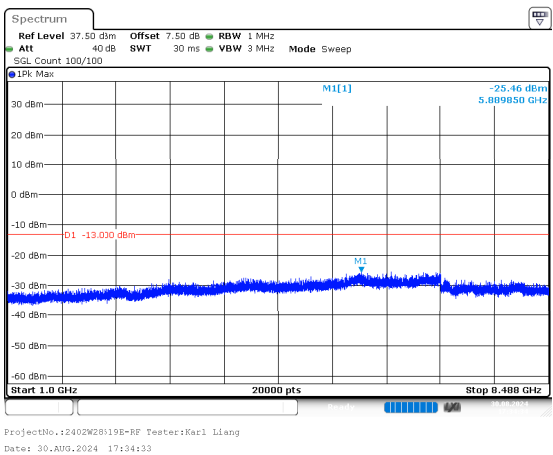
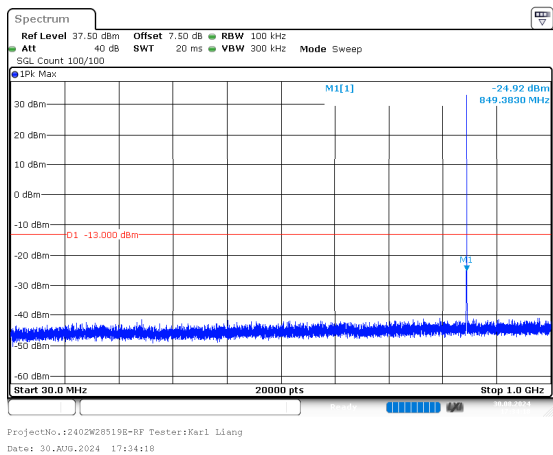
Above 1G



GSM_High

Below 1G

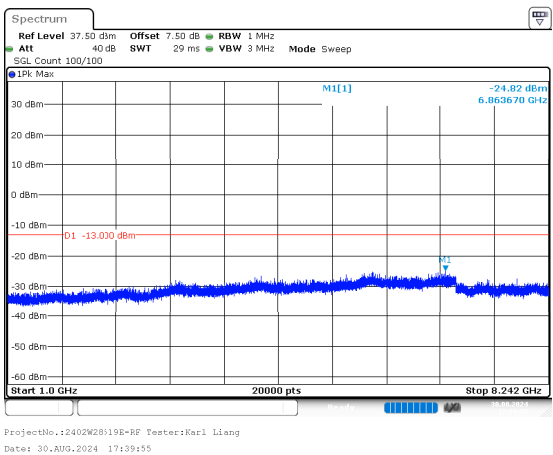
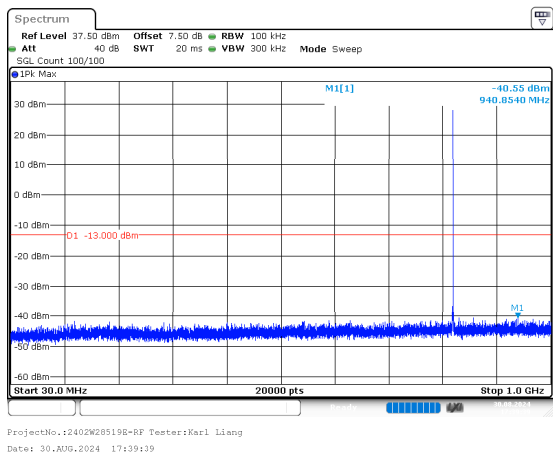
Above 1G



EDGE_Low_Solt1

Below 1G

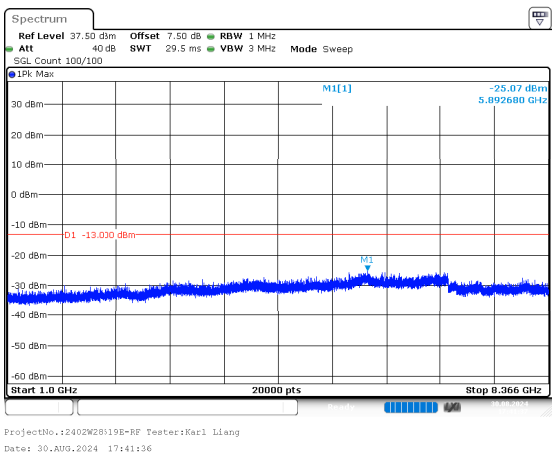
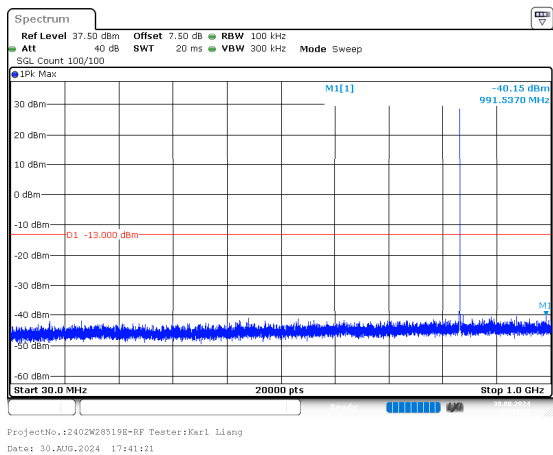
Above 1G



EDGE_Middle_Solt1

Below 1G

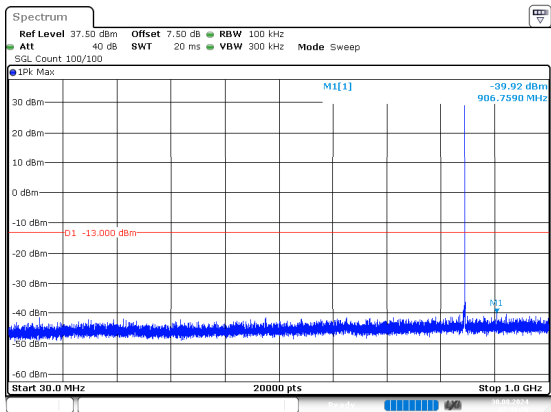
Above 1G



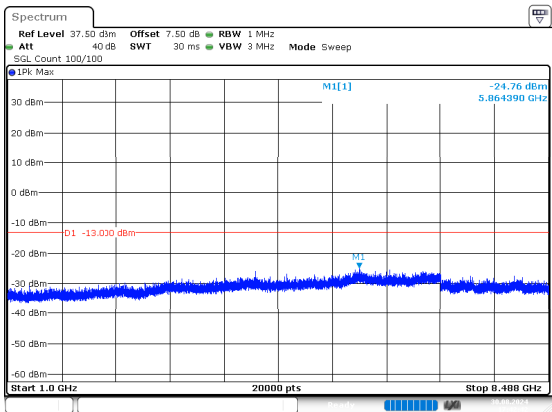
EDGE_High_Solt1

Below 1G

Above 1G



ProjectNo.:2402W28519E-RF Tester:Karl Liang
Date: 30.AUG.2024 17:42:26



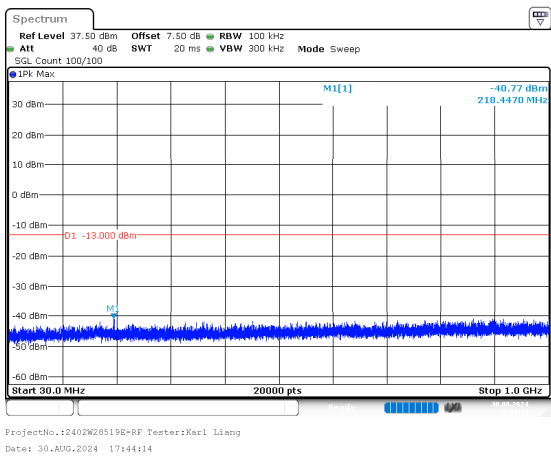
ProjectNo.:2402W28519E-RF Tester:Karl Liang
Date: 30.AUG.2024 17:42:42

FCC Part 24E& IC RSS 133

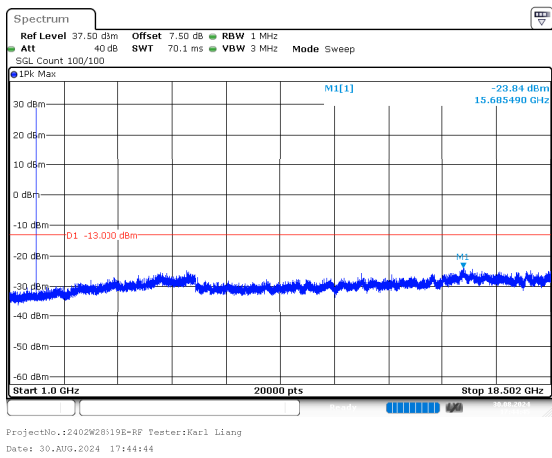
GSM 1900 , Normal

GSM_Low

Below 1G

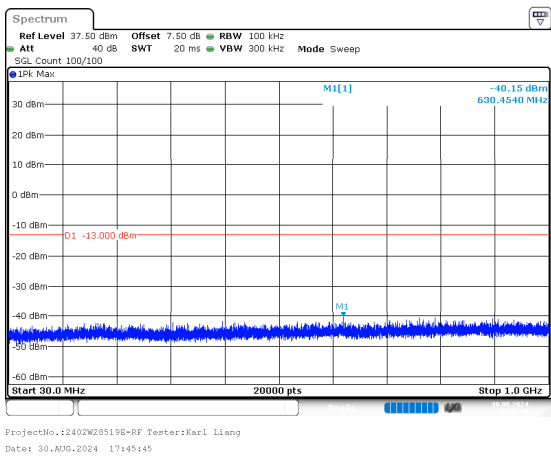


Above 1G

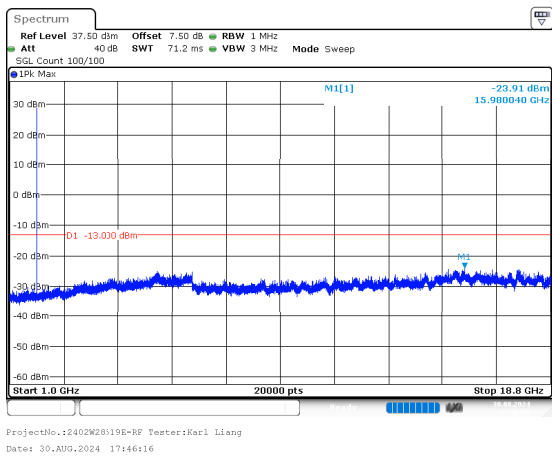


GSM_Middle

Below 1G

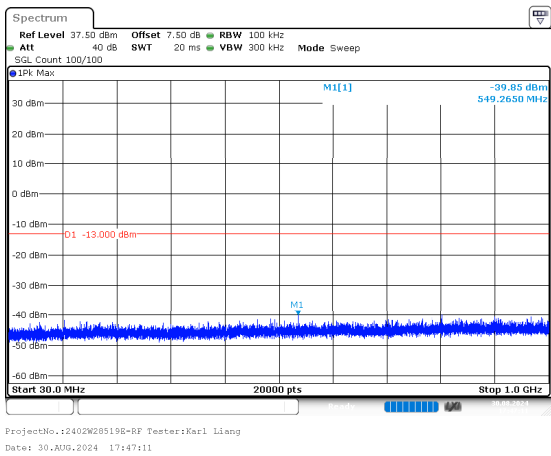


Above 1G

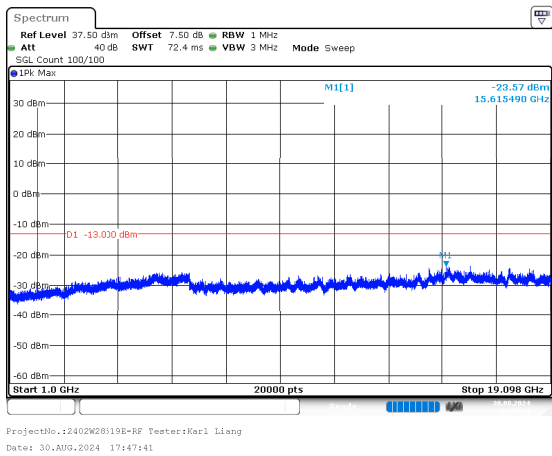


GSM_High

Below 1G



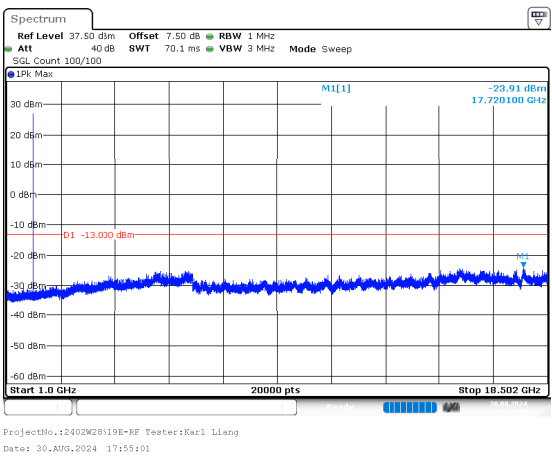
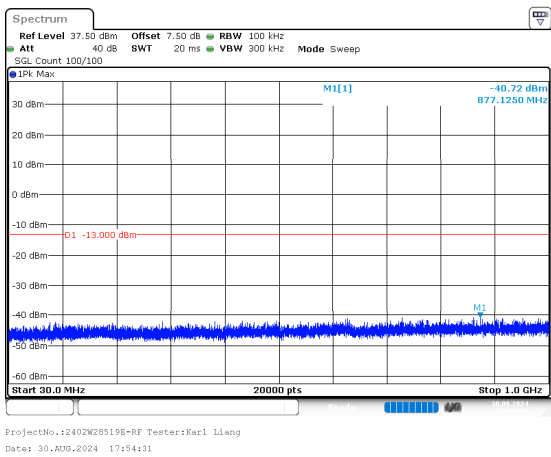
Above 1G



EDGE_Low_Solt1

Below 1G

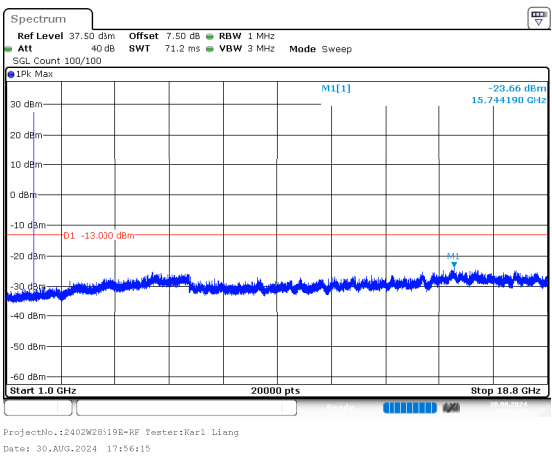
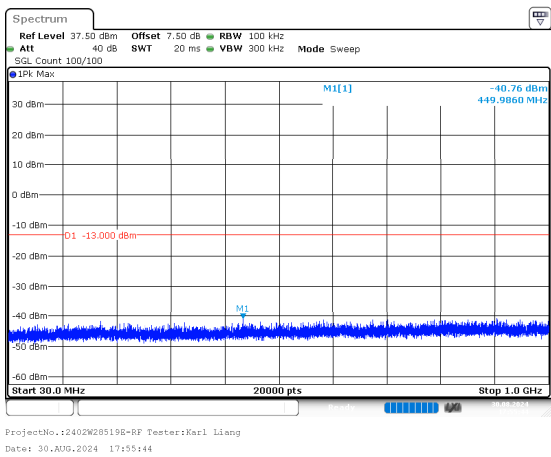
Above 1G



EDGE_Middle_Solt1

Below 1G

Above 1G



EDGE_High_Solt1

Below 1G

Above 1G

