

Appendix A

Test Information:

Serial No.:	2O92-17	Test Date:	2024/07/18~2024/07/25
Test Site:	RF	Test Mode:	Transmitting
Tester:	Loge Long	Test Result:	Pass

Environmental Conditions:

Temperature: (°C):	26.2~28.5	Relative Humidity: (%)	51~68	ATM Pressure: (kPa)	99.3~100.9
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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-Clruits	Coaxial Power Splitters & Combiner	ZFRSC-183-S+	SF448201614	2024/02/25	2025/02/24
R&S	Wideband Radio Communication Tester	CMW500	149216	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	2023/08/03	2024/08/02
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

FCC Part 22H

GSM 850

Mode	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)	Result
GPRS_Middle_Solt1_TN/VN	10.6	0.013	±2.5	Pass
GPRS_Middle_Solt1_T1/VN	5.2	0.006	±2.5	Pass
GPRS_Middle_Solt1_T2/VN	6.5	0.008	±2.5	Pass
GPRS_Middle_Solt1_T3/VN	8.2	0.010	±2.5	Pass
GPRS_Middle_Solt1_T4/VN	5.3	0.006	±2.5	Pass
GPRS_Middle_Solt1_T5/VN	7.8	0.009	±2.5	Pass
GPRS_Middle_Solt1_T6/VN	8.6	0.010	±2.5	Pass
GPRS_Middle_Solt1_T7/VN	6.8	0.008	±2.5	Pass
GPRS_Middle_Solt1_T8/VN	8.8	0.011	±2.5	Pass
GPRS_Middle_Solt1_TN/VH	1.8	0.002	±2.5	Pass
GPRS_Middle_Solt1_TN/VL	5.3	0.006	±2.5	Pass
EDGE_Middle_Solt1_TN/VN	1.7	0.002	±2.5	Pass
EDGE_Middle_Solt1_T1/VN	4.9	0.006	±2.5	Pass
EDGE_Middle_Solt1_T2/VN	-4.2	-0.005	±2.5	Pass
EDGE_Middle_Solt1_T3/VN	8.0	0.010	±2.5	Pass
EDGE_Middle_Solt1_T4/VN	7.1	0.008	±2.5	Pass
EDGE_Middle_Solt1_T5/VN	3.8	0.004	±2.5	Pass
EDGE_Middle_Solt1_T6/VN	3.8	0.005	±2.5	Pass
EDGE_Middle_Solt1_T7/VN	3.2	0.004	±2.5	Pass
EDGE_Middle_Solt1_T8/VN	0.6	0.001	±2.5	Pass
EDGE_Middle_Solt1_TN/VH	5.6	0.007	±2.5	Pass
EDGE_Middle_Solt1_TN/VL	5.4	0.006	±2.5	Pass

Note:

Frequency Error (ppm)=Frequency Error (MHz)/Test Channel(MHz)*10⁶

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
GPRS_Low_Solt1_TN/VN	1850.081	1850	Pass
GPRS_Low_Solt1_T1/VN	1850.076	1850	Pass
GPRS_Low_Solt1_T2/VN	1850.077	1850	Pass
GPRS_Low_Solt1_T3/VN	1850.082	1850	Pass
GPRS_Low_Solt1_T4/VN	1850.081	1850	Pass
GPRS_Low_Solt1_T5/VN	1850.081	1850	Pass
GPRS_Low_Solt1_T6/VN	1850.082	1850	Pass
GPRS_Low_Solt1_T7/VN	1850.077	1850	Pass
GPRS_Low_Solt1_T8/VN	1850.079	1850	Pass
GPRS_Low_Solt1_TN/VH	1850.076	1850	Pass
GPRS_Low_Solt1_TN/VL	1850.081	1850	Pass
GPRS_High_Solt1_TN/VN	1909.928	1910	Pass
GPRS_High_Solt1_T1/VN	1909.922	1910	Pass
GPRS_High_Solt1_T2/VN	1909.925	1910	Pass
GPRS_High_Solt1_T3/VN	1909.925	1910	Pass
GPRS_High_Solt1_T4/VN	1909.924	1910	Pass
GPRS_High_Solt1_T5/VN	1909.924	1910	Pass
GPRS_High_Solt1_T6/VN	1909.925	1910	Pass
GPRS_High_Solt1_T7/VN	1909.924	1910	Pass
GPRS_High_Solt1_T8/VN	1909.923	1910	Pass
GPRS_High_Solt1_TN/VH	1909.924	1910	Pass
GPRS_High_Solt1_TN/VL	1909.923	1910	Pass
EDGE_Low_Solt1_TN/VN	1850.073	1850	Pass
EDGE_Low_Solt1_T1/VN	1850.076	1850	Pass
EDGE_Low_Solt1_T2/VN	1850.080	1850	Pass
EDGE_Low_Solt1_T3/VN	1850.081	1850	Pass
EDGE_Low_Solt1_T4/VN	1850.074	1850	Pass
EDGE_Low_Solt1_T5/VN	1850.081	1850	Pass
EDGE_Low_Solt1_T6/VN	1850.079	1850	Pass
EDGE_Low_Solt1_T7/VN	1850.074	1850	Pass
EDGE_Low_Solt1_T8/VN	1850.078	1850	Pass

Mode	Value (MHz)	Limit (MHz)	Result
EDGE_Low_Solt1_TN/VH	1850.075	1850	Pass
EDGE_Low_Solt1_TN/VL	1850.072	1850	Pass
EDGE_High_Solt1_TN/VN	1909.922	1910	Pass
EDGE_High_Solt1_T1/VN	1909.925	1910	Pass
EDGE_High_Solt1_T2/VN	1909.926	1910	Pass
EDGE_High_Solt1_T3/VN	1909.924	1910	Pass
EDGE_High_Solt1_T4/VN	1909.922	1910	Pass
EDGE_High_Solt1_T5/VN	1909.925	1910	Pass
EDGE_High_Solt1_T6/VN	1909.923	1910	Pass
EDGE_High_Solt1_T7/VN	1909.922	1910	Pass
EDGE_High_Solt1_T8/VN	1909.923	1910	Pass
EDGE_High_Solt1_TN/VH	1909.930	1910	Pass
EDGE_High_Solt1_TN/VL	1909.925	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

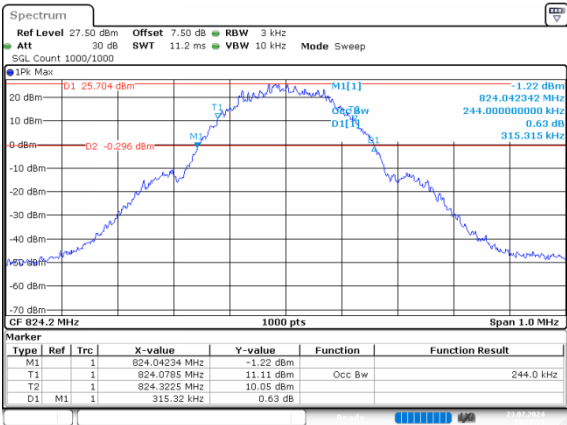
FCC Part 22H

GSM 850 , Normal

Mode	99% OBW (MHz)	EBW (MHz)
GPRS_Low_Solt1	0.244	0.315
GPRS_Middle_Solt1	0.243	0.320
GPRS_High_Solt1	0.244	0.319
EDGE_Low_Solt1	0.249	0.313
EDGE_Middle_Solt1	0.250	0.313
EDGE_High_Solt1	0.246	0.315

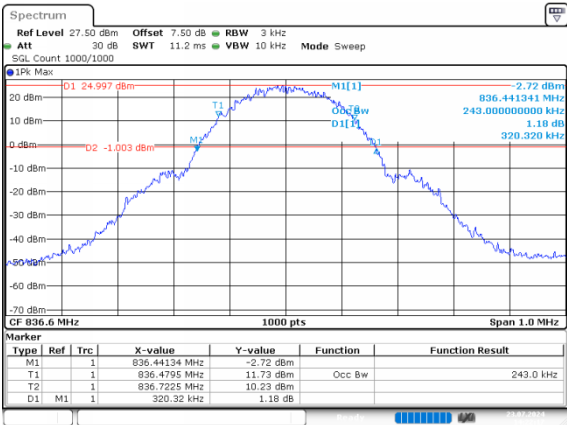
GSM 850 , Normal

GPRS_Low_Solt1 0.244MHz



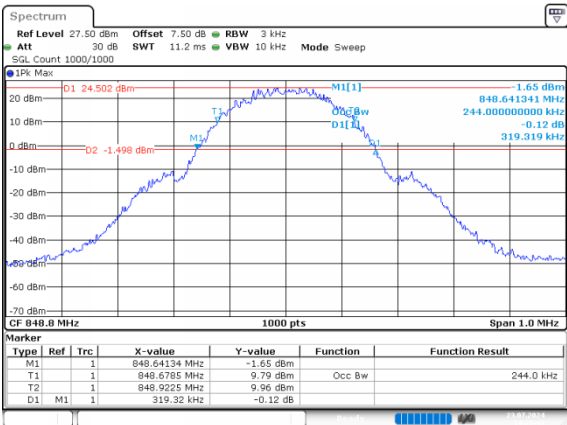
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GPRS_Middle_Solt1 0.243MHz



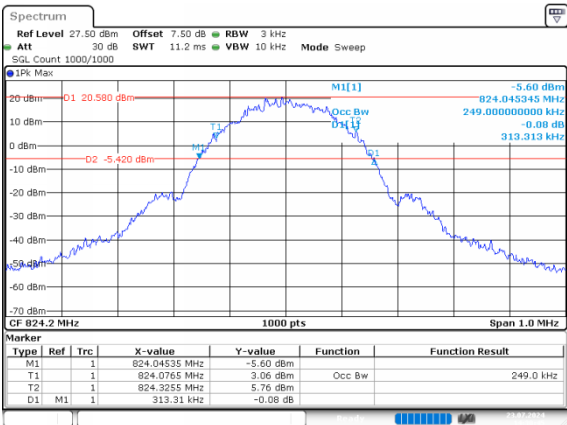
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GPRS_High_Solt1 0.244MHz



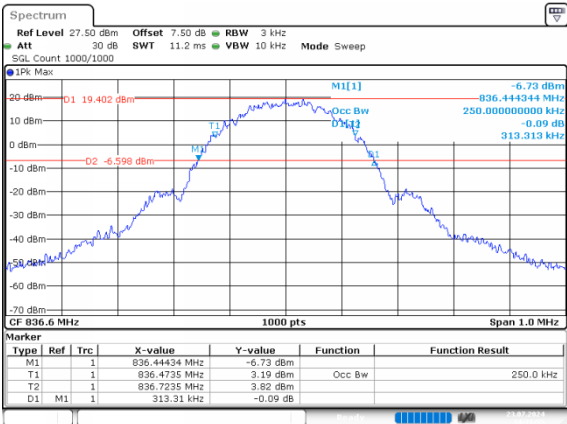
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EDGE_Low_Solt1 0.249MHz



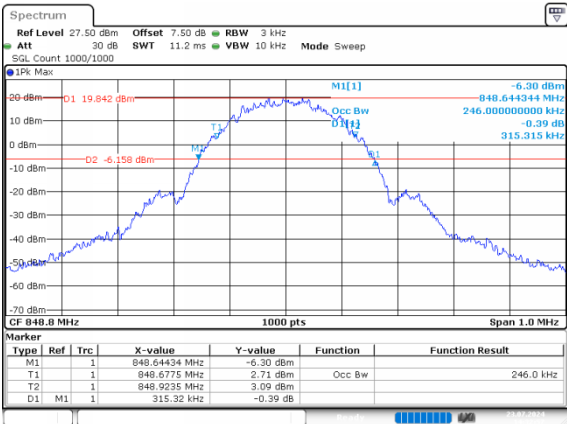
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 Date: 23.JUL.2024 14:30:45

EDGE_Middle_Solt1 0.250MHz



ProjectNo.:2402V85163E-RF Tester:Loge Long
 Date: 23.JUL.2024 14:31:55

EDGE_High_Solt1 0.246MHz



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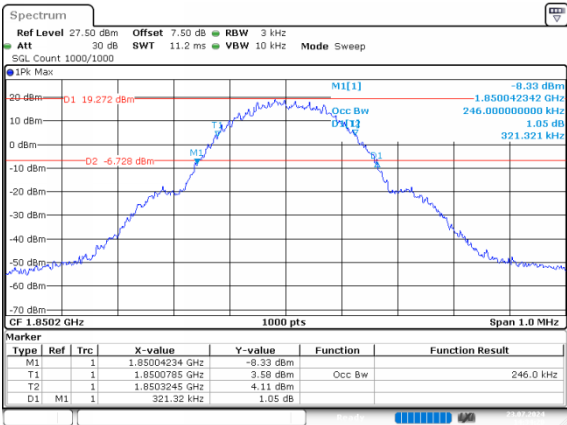
FCC Part 24E

GSM 1900 , Normal

Mode	99% OBW (MHz)	EBW (MHz)
GPRS_Low_Solt1	0.246	0.321
GPRS_Middle_Solt1	0.248	0.316
GPRS_High_Solt1	0.243	0.316
EDGE_Low_Solt1	0.245	0.317
EDGE_Middle_Solt1	0.245	0.314
EDGE_High_Solt1	0.243	0.320

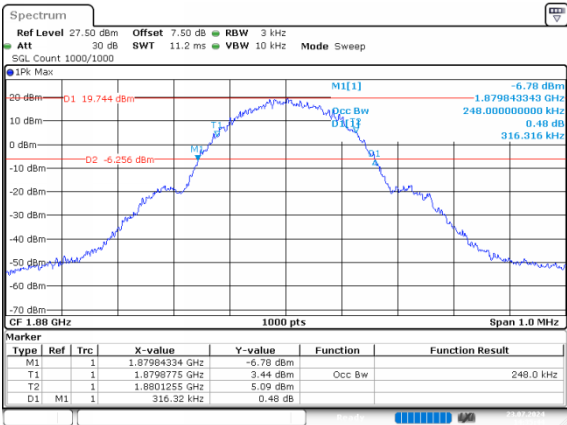
GSM 1900 , Normal

GPRS_Low_Solt1 0.246MHz



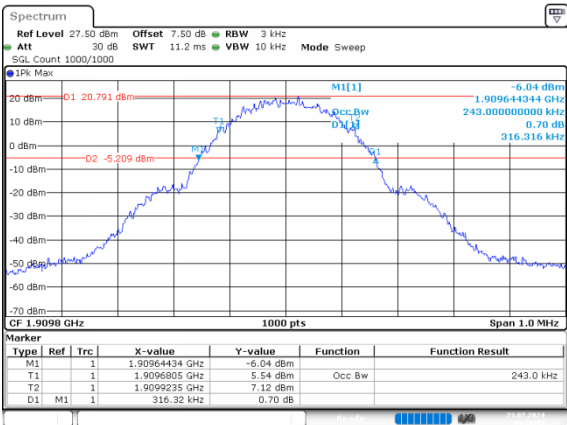
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GPRS_Middle_Solt1 0.248MHz



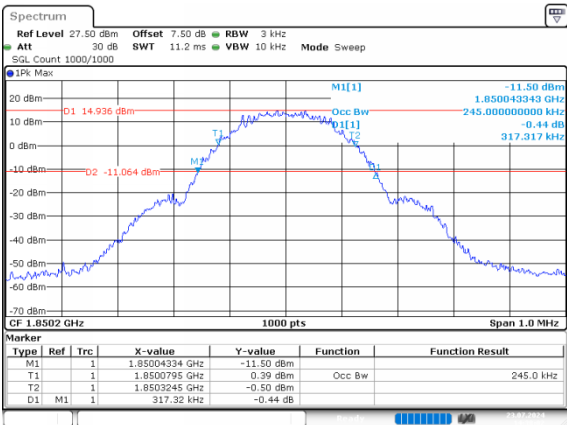
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GPRS_High_Solt1 0.243MHz



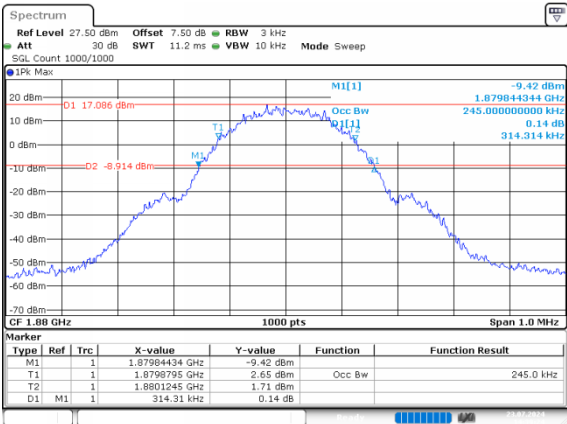
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EDGE_Low_Solt1 0.245MHz



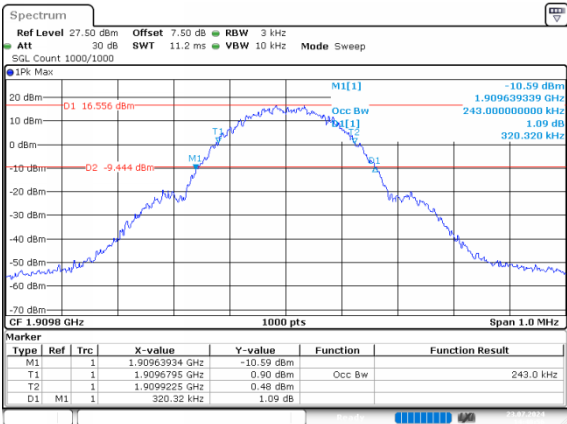
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EDGE_Middle_Solt1 0.245MHz



ProjectNo.:2402V85163E-RF Tester:Loge Long
Date: 23.JUL.2024 14:39:24

EDGE_High_Solt1 0.243MHz



ProjectNo.:2402V85163E-RF Tester:Loge Long
Date: 23.JUL.2024 14:40:56

RF Output Power

FCC Part 22H

GSM 850 , Normal

Mode	Peak Conducted Power (dBm)	ERP (dBm)	Limit(dBm)	Result
GPRS_Low_Solt1	32.95	29.41	38.45	Pass
GPRS_Low_Solt2	32.23	28.69	38.45	Pass
GPRS_Low_Solt3	30.54	27.00	38.45	Pass
GPRS_Low_Solt4	29.52	25.98	38.45	Pass
GPRS_Middle_Solt1	33.10	29.56	38.45	Pass
GPRS_Middle_Solt2	32.40	28.86	38.45	Pass
GPRS_Middle_Solt3	30.73	27.19	38.45	Pass
GPRS_Middle_Solt4	29.75	26.21	38.45	Pass
GPRS_High_Solt1	32.94	29.40	38.45	Pass
GPRS_High_Solt2	32.25	28.71	38.45	Pass
GPRS_High_Solt3	30.61	27.07	38.45	Pass
GPRS_High_Solt4	29.64	26.10	38.45	Pass
EDGE_Low_Solt1	27.54	24.00	38.45	Pass
EDGE_Low_Solt2	26.40	22.86	38.45	Pass
EDGE_Low_Solt3	24.35	20.81	38.45	Pass
EDGE_Low_Solt4	23.05	19.51	38.45	Pass
EDGE_Middle_Solt1	27.66	24.12	38.45	Pass
EDGE_Middle_Solt2	26.48	22.94	38.45	Pass
EDGE_Middle_Solt3	24.36	20.82	38.45	Pass
EDGE_Middle_Solt4	23.17	19.63	38.45	Pass
EDGE_High_Solt1	27.54	24.00	38.45	Pass
EDGE_High_Solt2	26.41	22.87	38.45	Pass
EDGE_High_Solt3	24.23	20.69	38.45	Pass
EDGE_High_Solt4	23.11	19.57	38.45	Pass

Note:

$ERP = \text{Conducted Power(dBm)} - L_c(\text{dB}) + G_T(\text{dBd})$

$G_T(\text{dBd}) = G_T(\text{dBi}) - 2.15$

$1.Ant\ Gain = -1.39\text{dBi};$

$2.C_L = \text{signal attenuation in the connecting cable between the transmitter and antenna in 0dB}$

FCC Part 24E

GSM 1900 , Normal

Mode	Peak Conducted Power (dBm)	EIRP (dBm)	Limit(dBm)	Result
GPRS_Low_Solt1	29.77	31.44	33	Pass
GPRS_Low_Solt2	29.04	30.71	33	Pass
GPRS_Low_Solt3	27.27	28.94	33	Pass
GPRS_Low_Solt4	26.16	27.83	33	Pass
GPRS_Middle_Solt1	29.91	31.58	33	Pass
GPRS_Middle_Solt2	29.19	30.86	33	Pass
GPRS_Middle_Solt3	27.43	29.10	33	Pass
GPRS_Middle_Solt4	26.33	28.00	33	Pass
GPRS_High_Solt1	29.91	31.58	33	Pass
GPRS_High_Solt2	29.20	30.87	33	Pass
GPRS_High_Solt3	27.47	29.14	33	Pass
GPRS_High_Solt4	26.36	28.03	33	Pass
EDGE_Low_Solt1	25.95	27.62	33	Pass
EDGE_Low_Solt2	24.77	26.44	33	Pass
EDGE_Low_Solt3	22.71	24.38	33	Pass
EDGE_Low_Solt4	21.51	23.18	33	Pass
EDGE_Middle_Solt1	25.90	27.57	33	Pass
EDGE_Middle_Solt2	24.80	26.47	33	Pass
EDGE_Middle_Solt3	22.66	24.33	33	Pass
EDGE_Middle_Solt4	21.52	23.19	33	Pass
EDGE_High_Solt1	26.04	27.71	33	Pass
EDGE_High_Solt2	24.90	26.57	33	Pass
EDGE_High_Solt3	22.81	24.48	33	Pass
EDGE_High_Solt4	21.68	23.35	33	Pass

Note:

$EIRP = \text{Conducted Power(dBm)} - L_C(\text{dB}) + G_T(\text{dBi})$

1.Ant Gain = 1.67dBi;

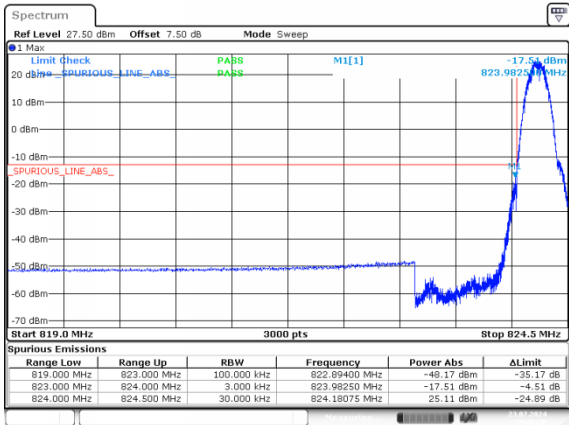
2.C_L = signal attenuation in the connecting cable between the transmitter and antenna in 0dB

Out of band emission,Band Edge

FCC Part 22H

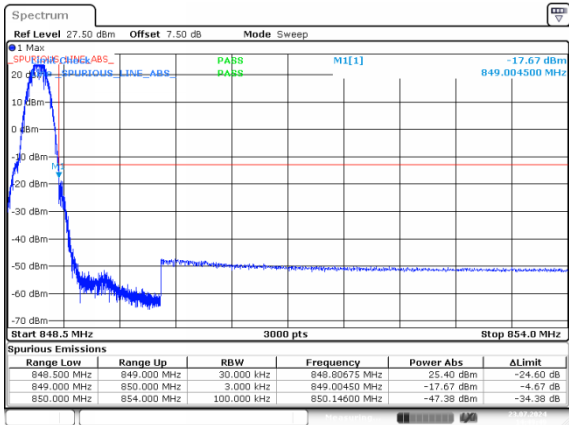
GSM 850 , Normal

GPRS_Low_Solt1 -17.51dBm



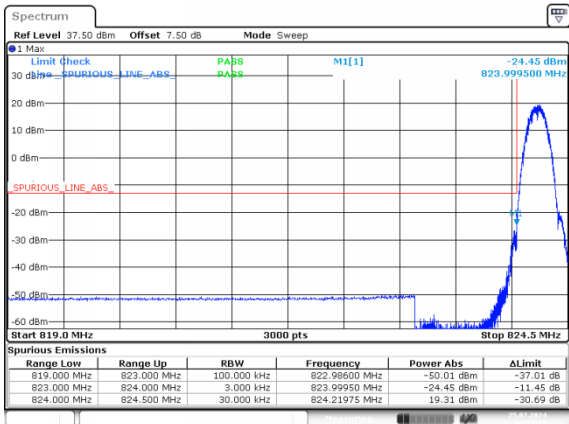
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Date: 23.JUL.2024 14:48:30

GPRS_High_Solt1 -17.67dBm



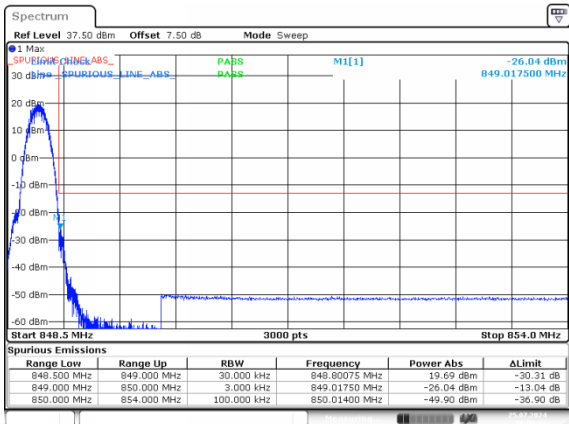
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Date: 23.JUL.2024 14:49:49

EDGE_Low_Solt1 -24.45dBm



ProjectNo.:2402V85163E-RF Tester:Loge Long
Date: 25.JUL.2024 08:53:19

EDGE_High_Solt1 -26.04dBm

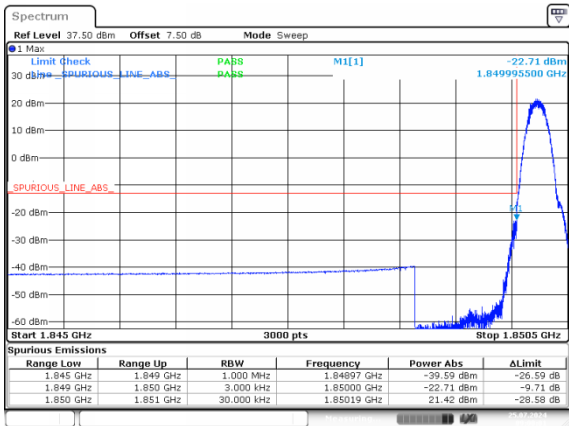


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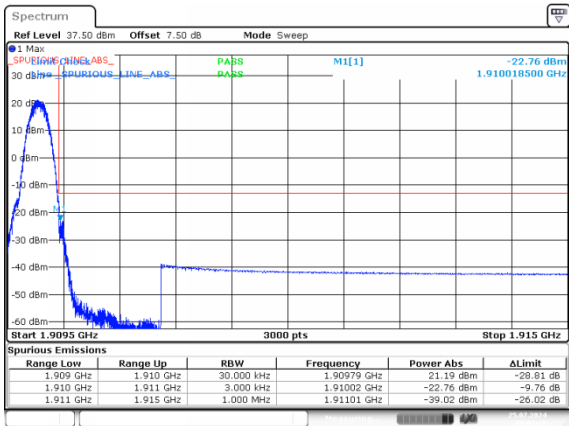
FCC Part 24E

GSM 1900 , Normal

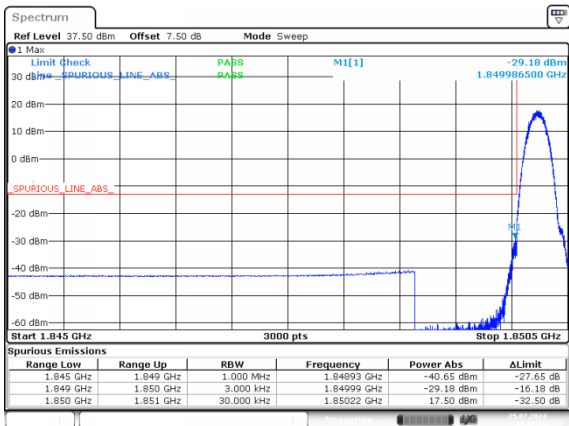
GPRS_Low_Solt1 -22.71dBm



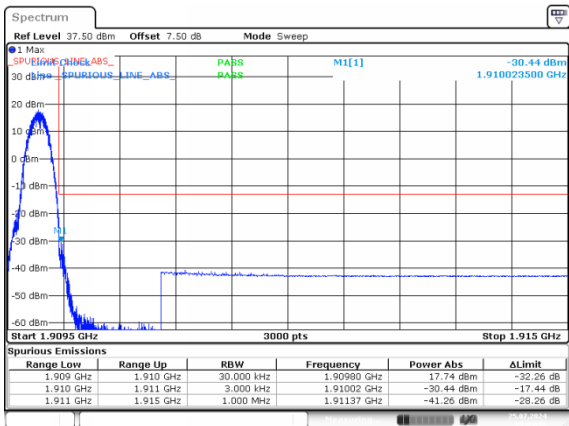
GPRS_High_Solt1 -22.76dBm



EDGE_Low_Solt1 -29.18dBm



EDGE_High_Solt1 -30.44dBm

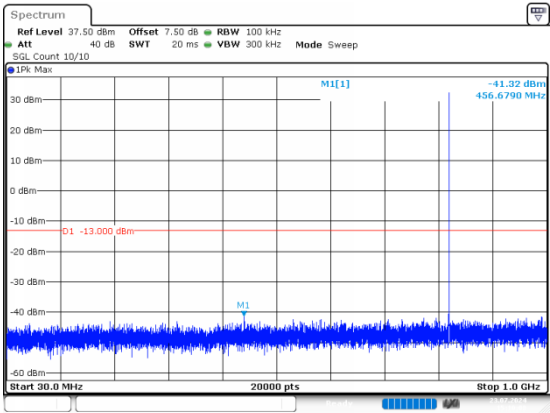


Spurious Emissions at Antenna Terminal

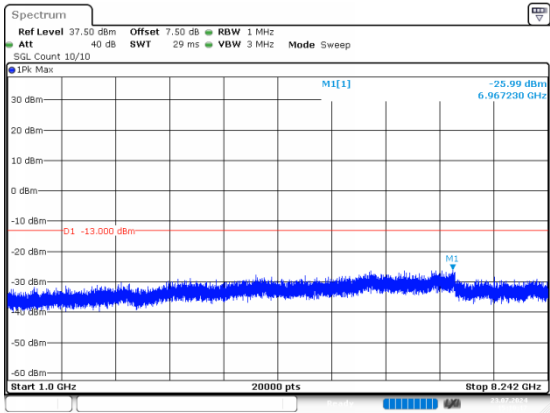
FCC Part 22H
GSM 850 , Normal

GPRS_Low_Solt1

Below 1G

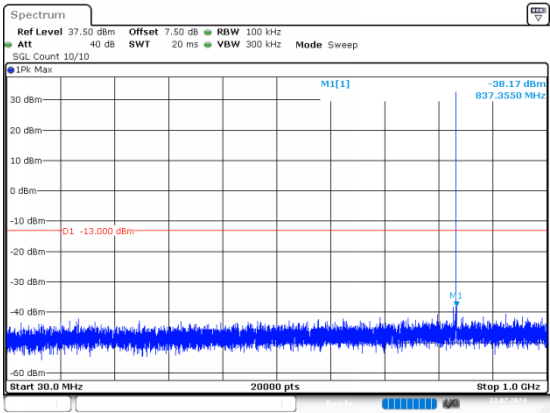


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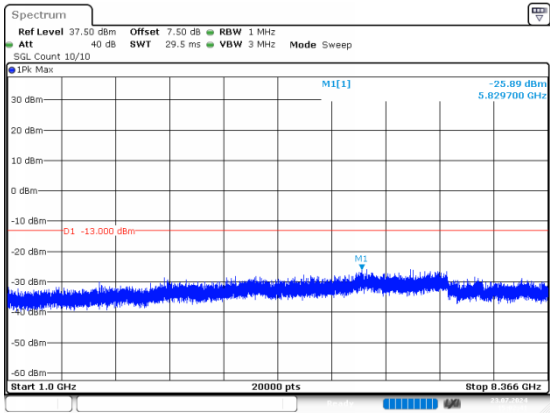


GPRS_Middle_Solt1

Below 1G

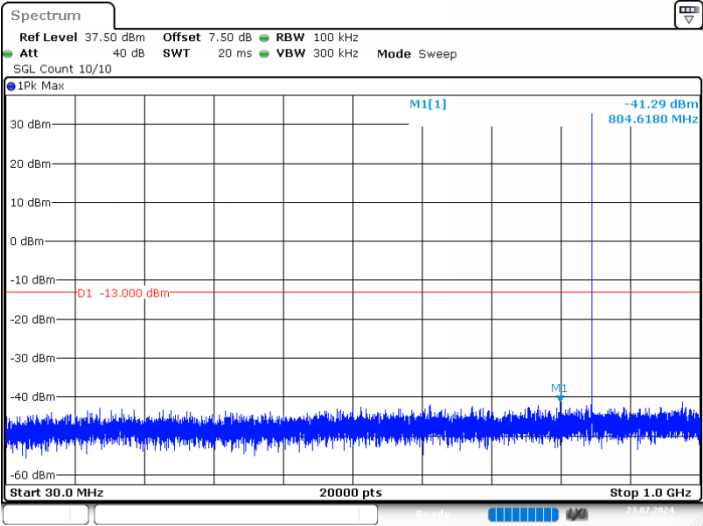


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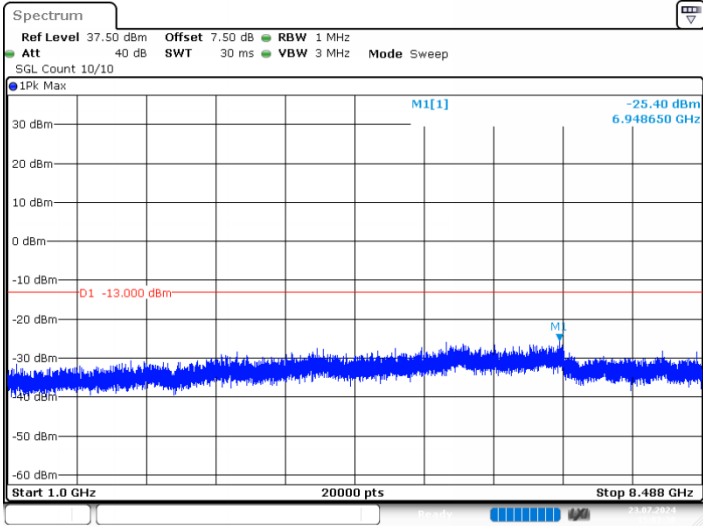
GPRS_High_Solt1

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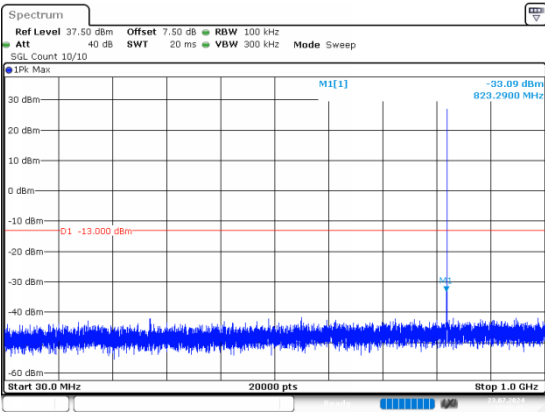
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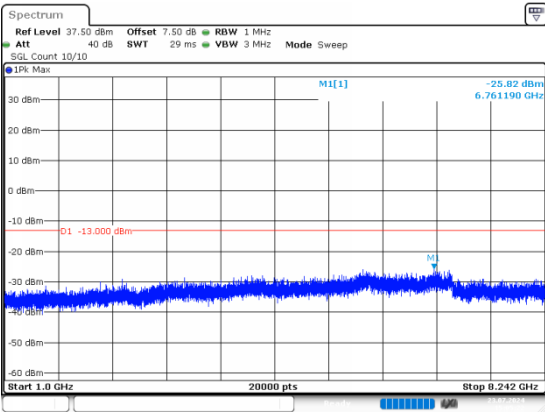
EDGE_Low_Solt1

Below 1G



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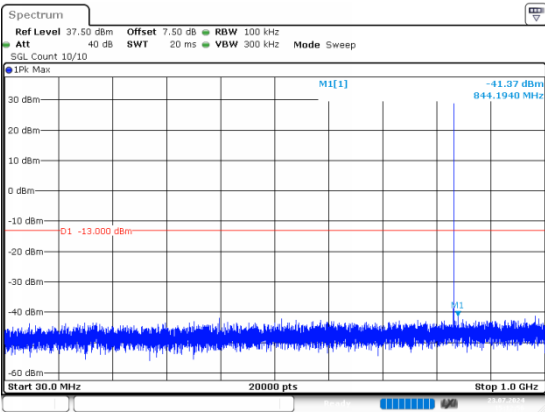
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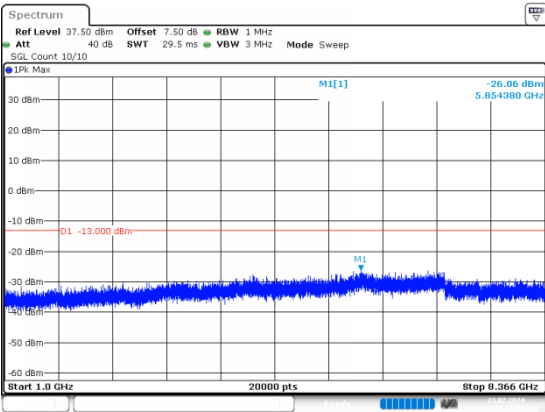
EDGE_Middle_Solt1

Below 1G



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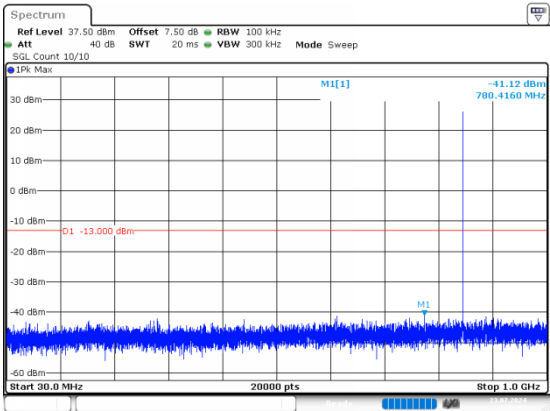
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Date: 23.JUL.2024 15:13:05

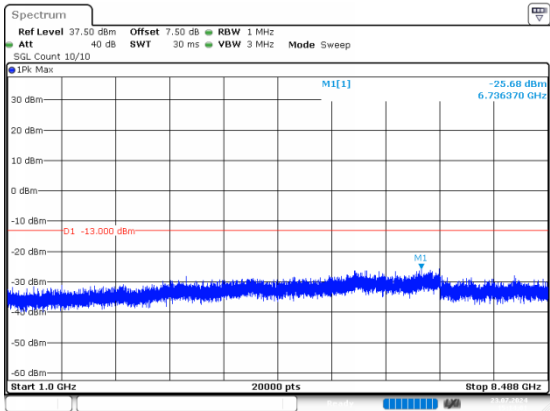
EDGE_High_Solt1

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ProjectNo.:2402V85163E-RF Tester:Loge Long
Date: 23.JUL.2024 15:13:53

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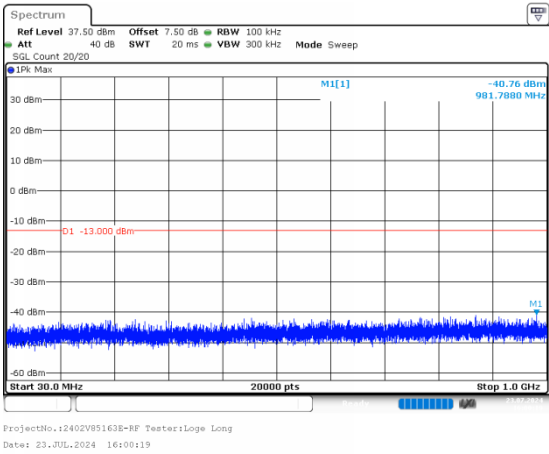


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Date: 23.JUL.2024 15:14:01

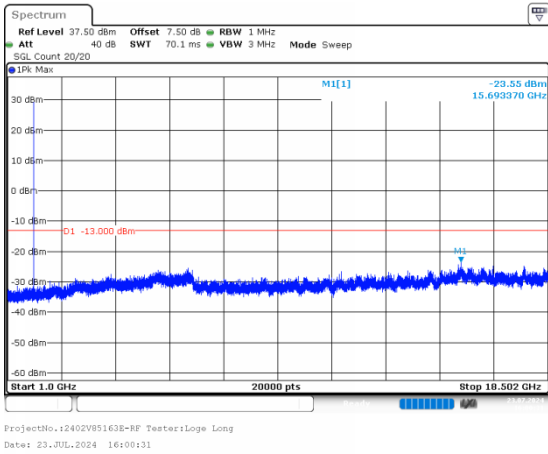
FCC Part 24E
GSM 1900 , Normal

GPRS_Low_Solt1

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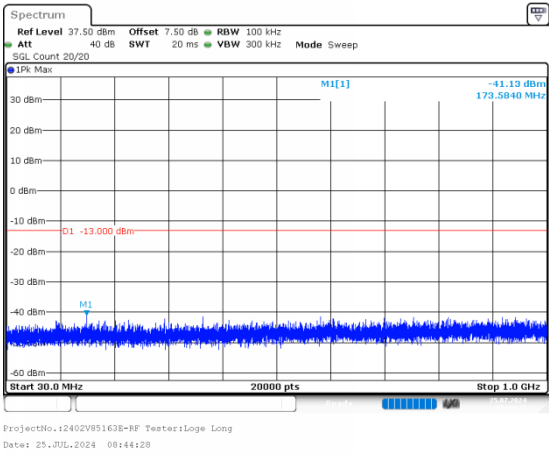


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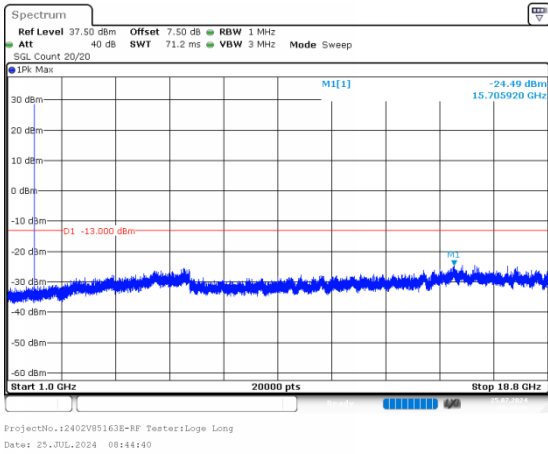


GPRS_Middle_Solt1

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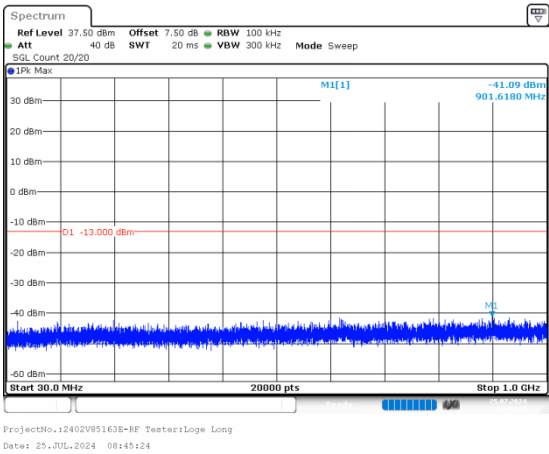


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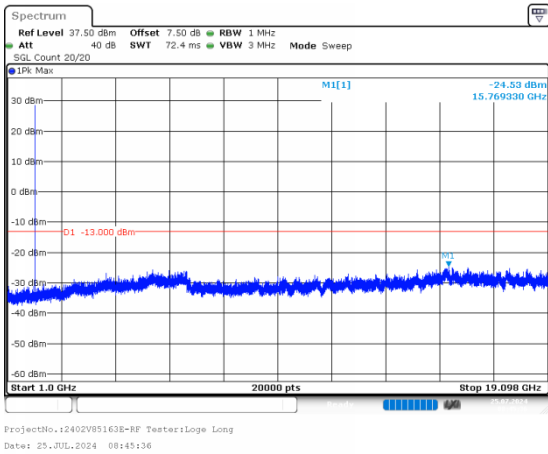


GPRS_High_Solt1

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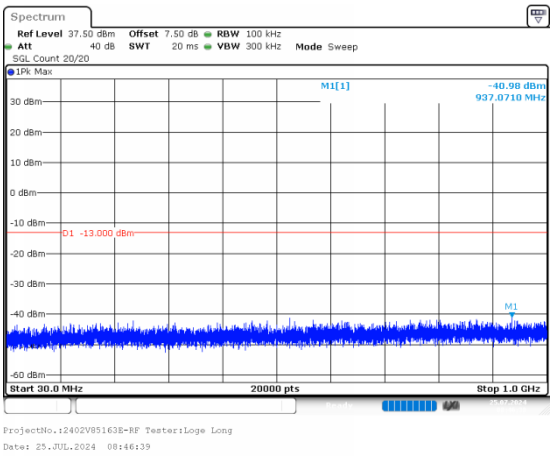


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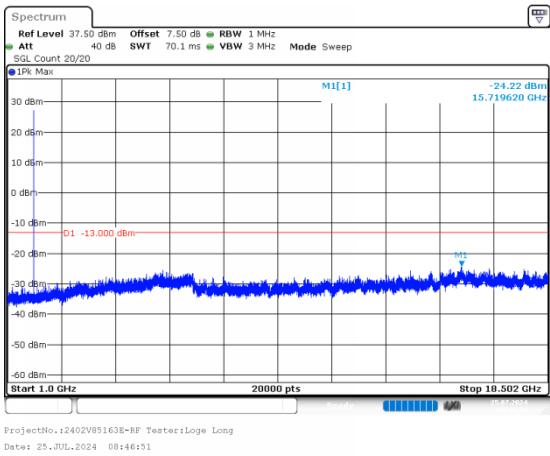


EDGE_Low_Solt1

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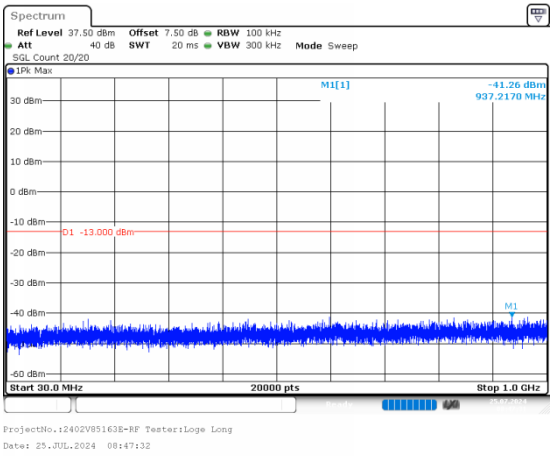


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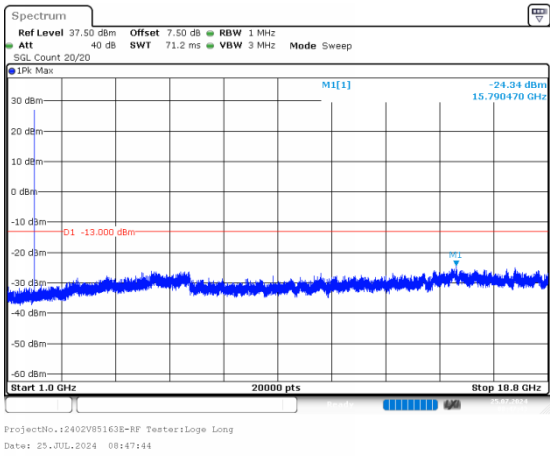


EDGE_Middle_Solt1

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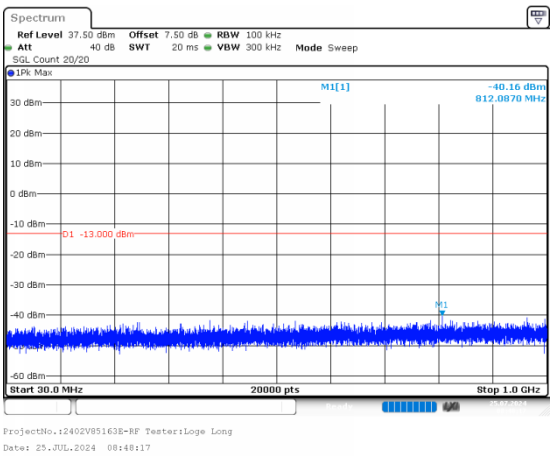


Above 1G



EDGE_High_Solt1

Below 1G



Above 1G

