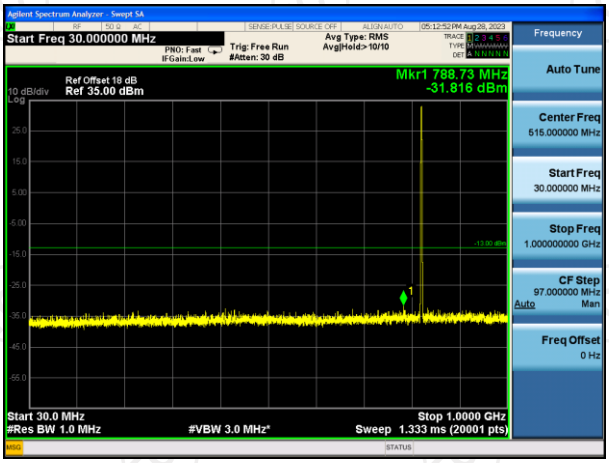
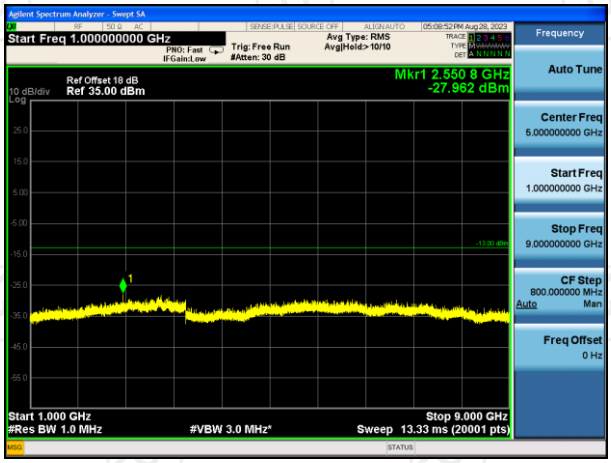
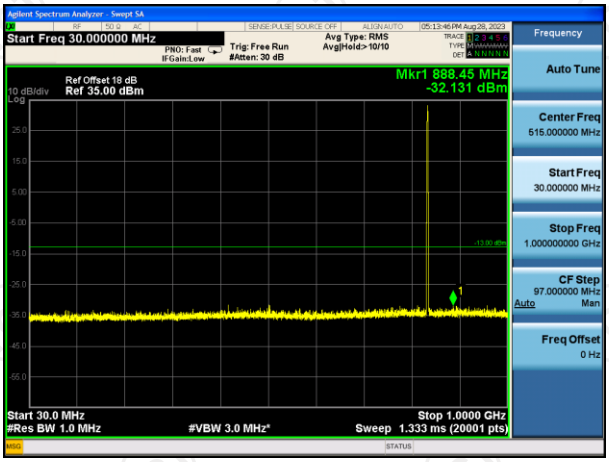
Band:	GSM 850	Test Mode:	GPRS class 12 Link (GMSK)

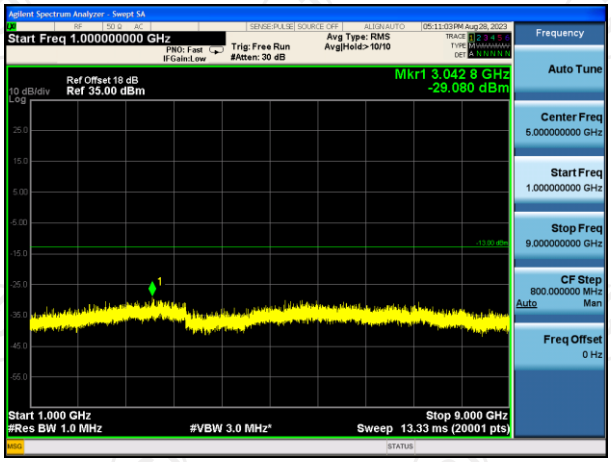
Conducted Spurious Emission on Channel 128



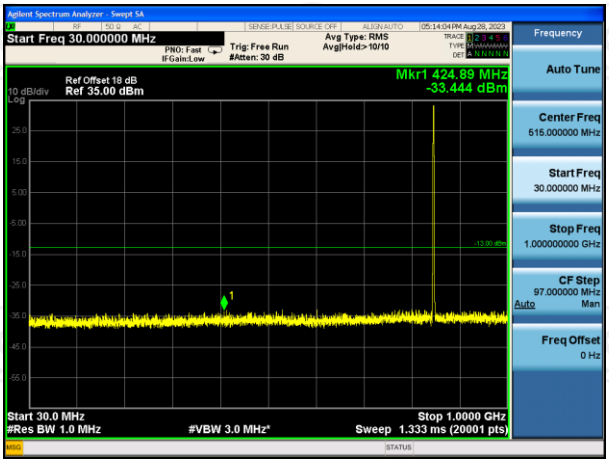


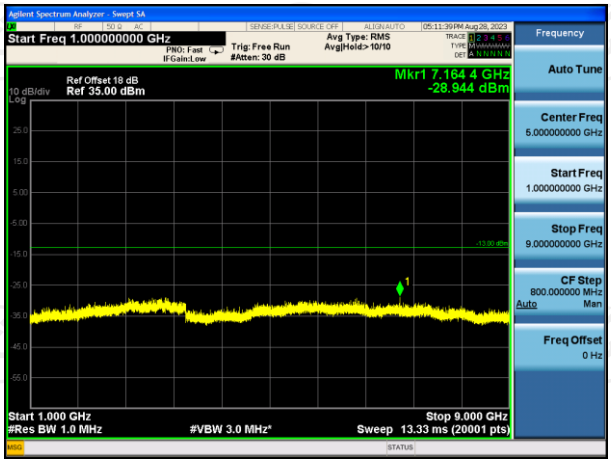
Conducted Spurious Emission on Channel 190





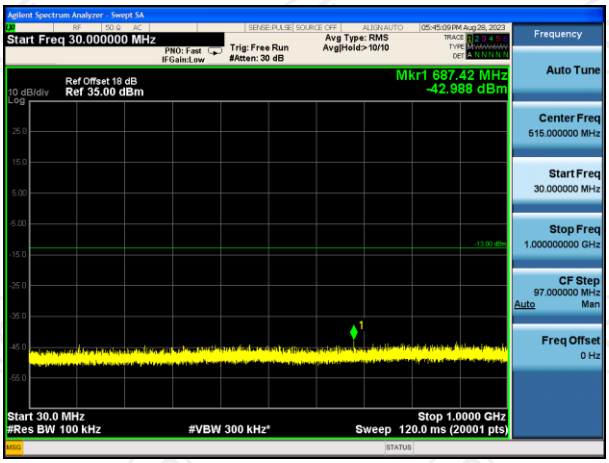
Conducted Spurious Emission on Channel 251

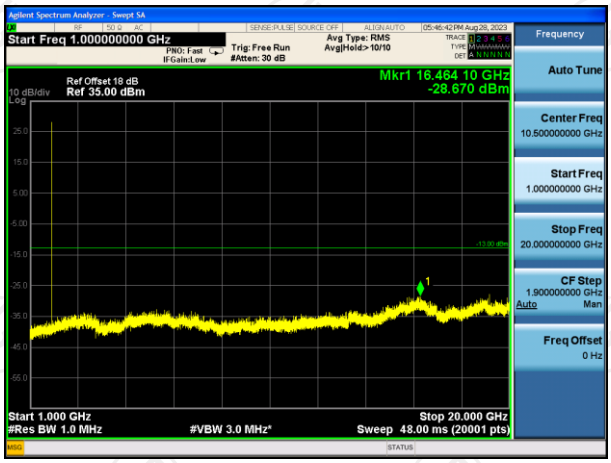




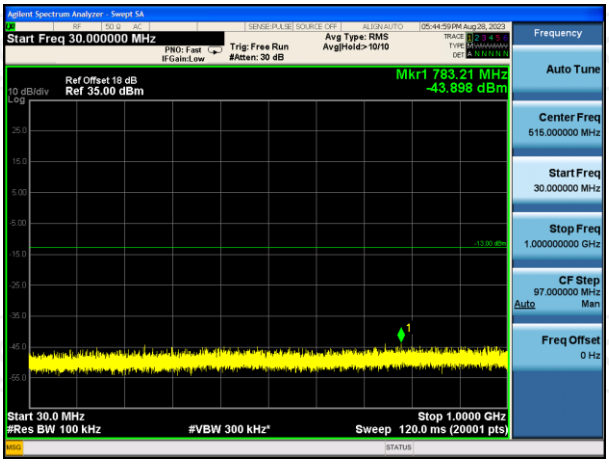
Band:	GSM 1900	Test Mode:	GPRS class 12 Link (GMSK)

Conducted Spurious Emission on Channel 512

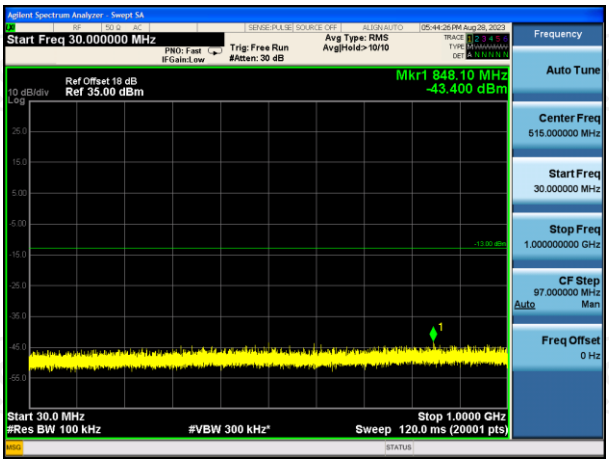




Conducted Spurious Emission on Channel 661

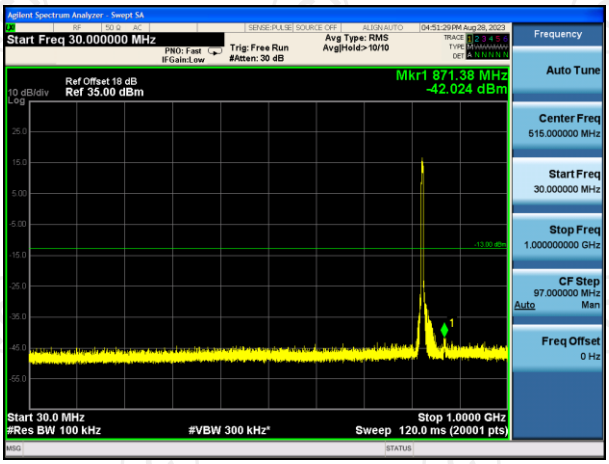


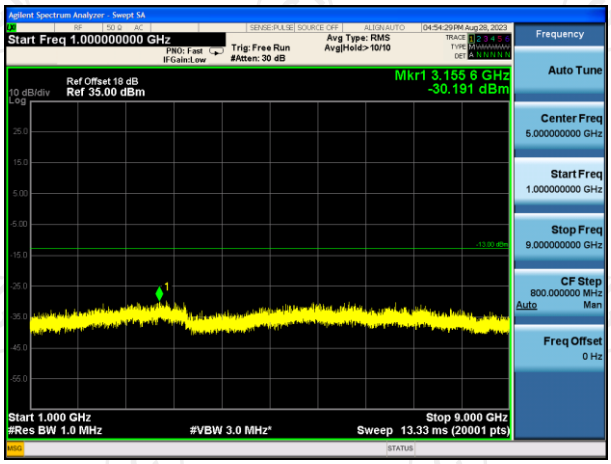
Conducted Spurious Emission on Channel 810



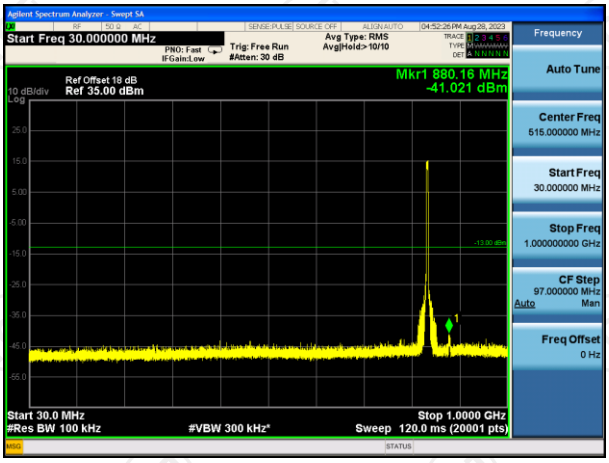
Band:	WCDMA Band V	Test Mode:	RMC 12.2Kbps Link (QPSK)

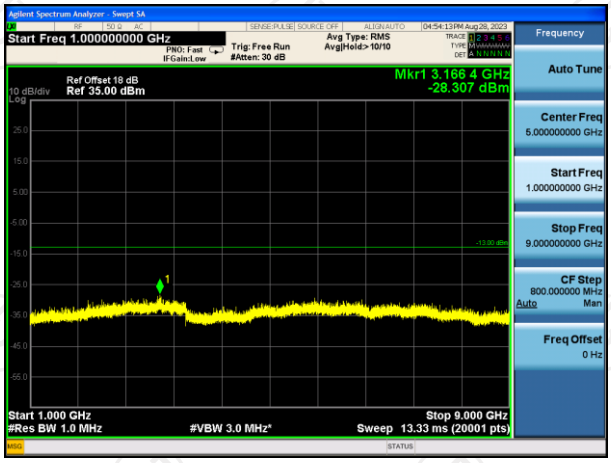
Conducted Spurious Emission on Channel 4132



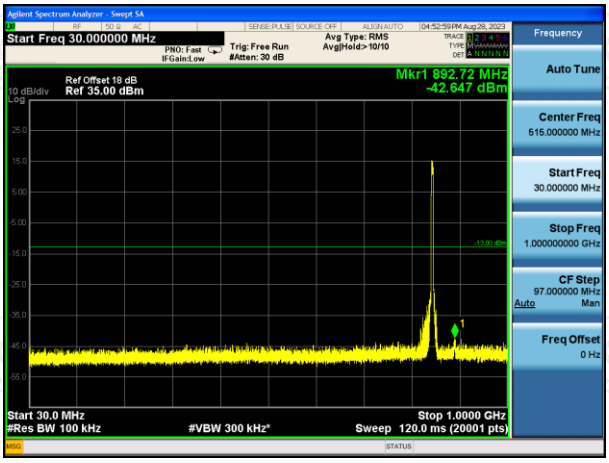


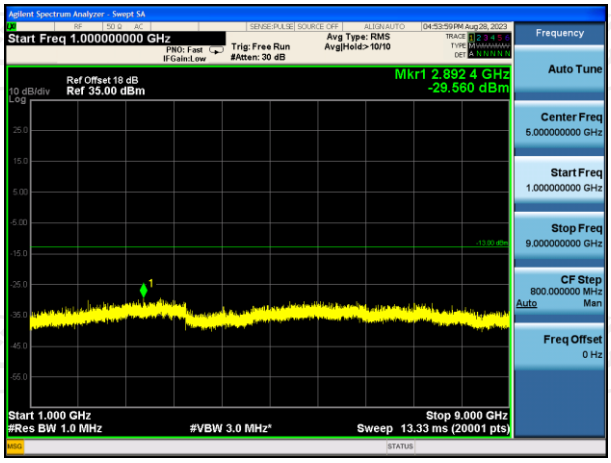
Conducted Spurious Emission on Channel 4182





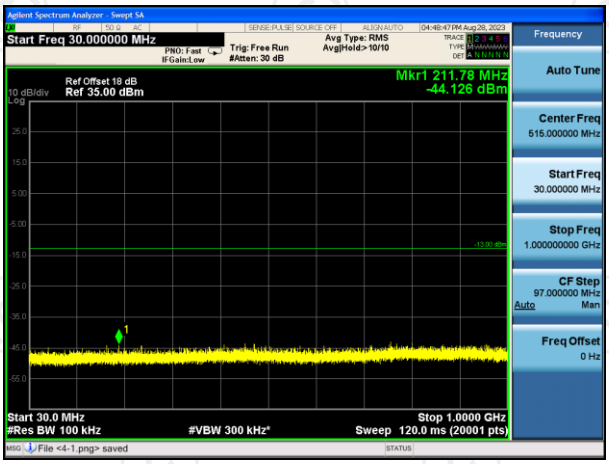
Conducted Spurious Emission on Channel 4233

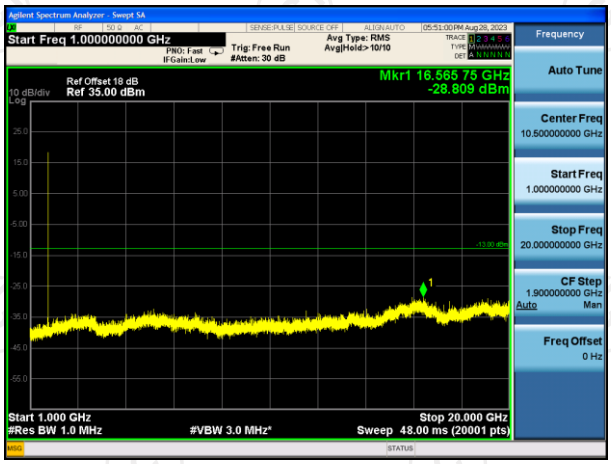




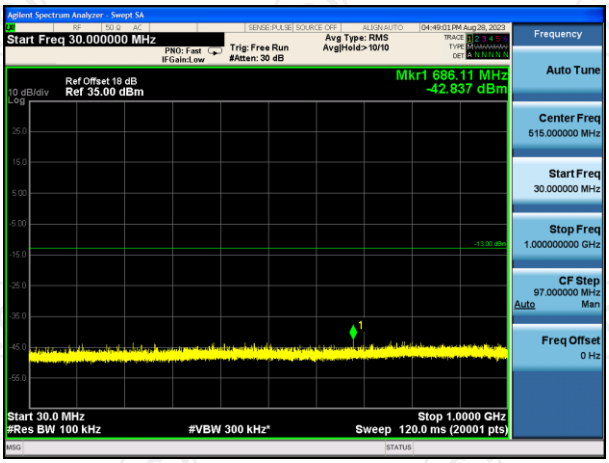
Band:	WCDMA Band IV	Test Mode:	RMC 12.2Kbps Link (QPSK)

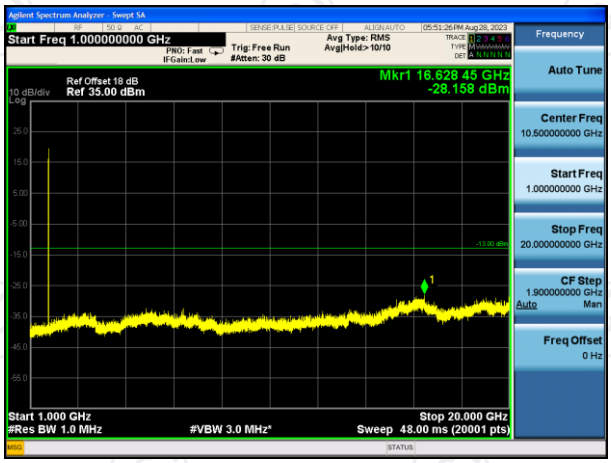
Conducted Spurious Emission on Channel 1312



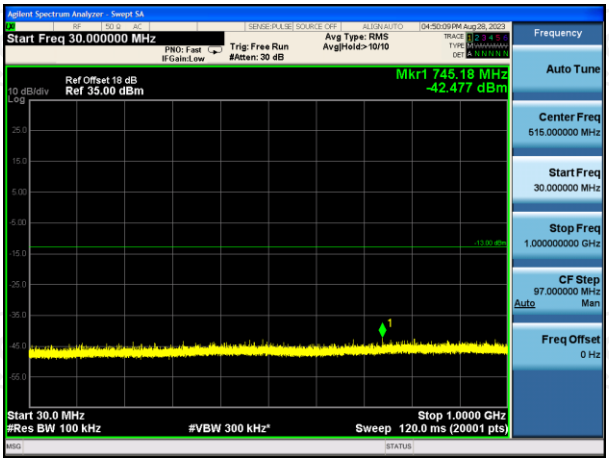


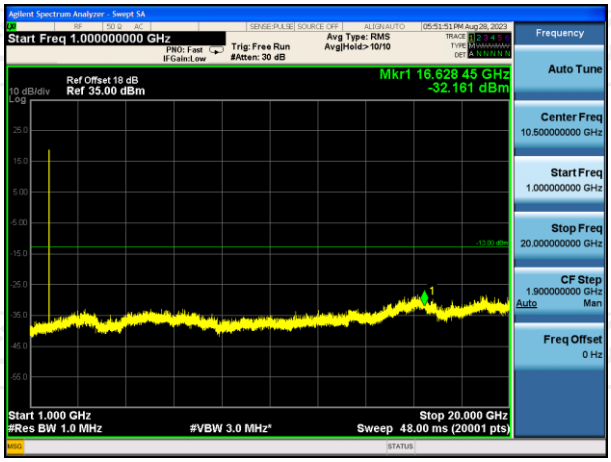
Conducted Spurious Emission on Channel 1413





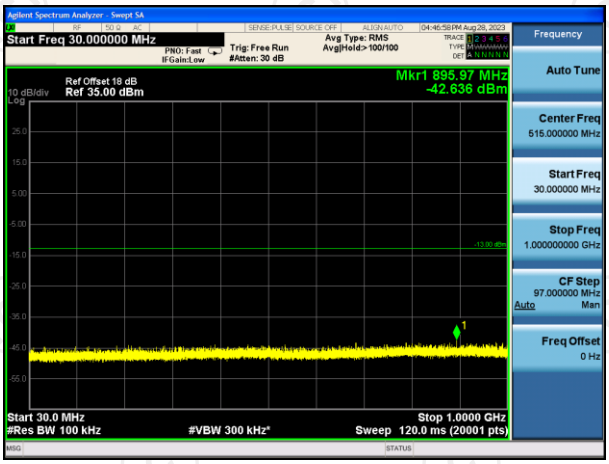
Conducted Spurious Emission on Channel 1513

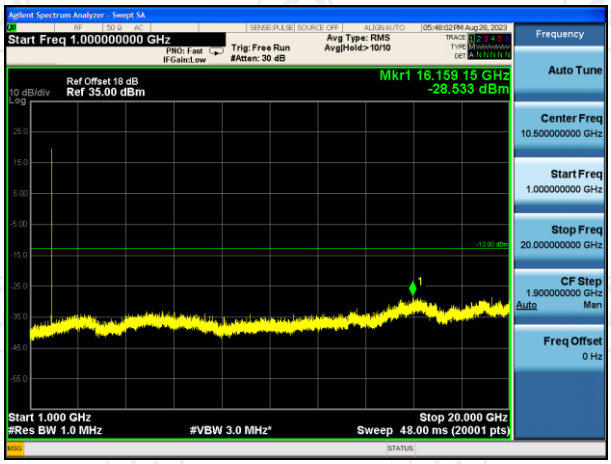




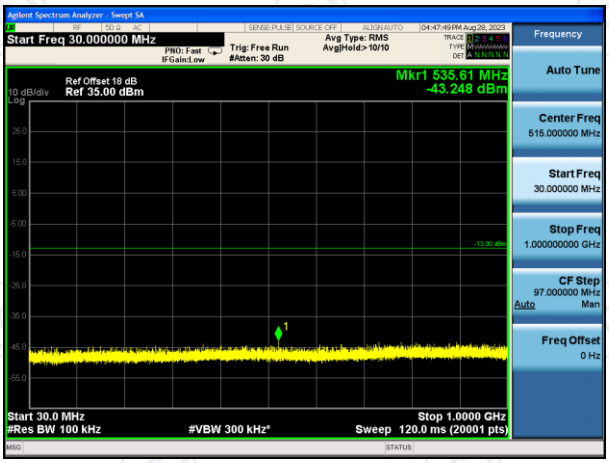
Band:	WCDMA Band II	Test Mode:	RMC 12.2Kbps Link (QPSK)

Conducted Spurious Emission on Channel 9262

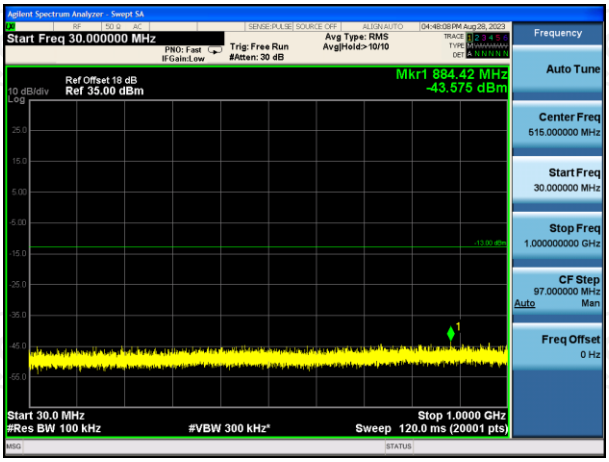


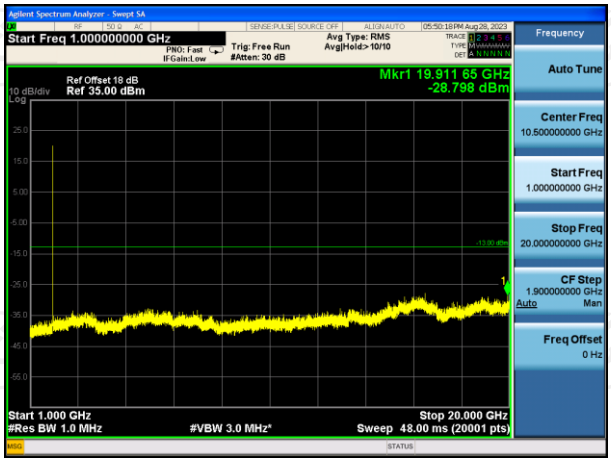


Conducted Spurious Emission on Channel 9400



Conducted Spurious Emission on Channel 9538



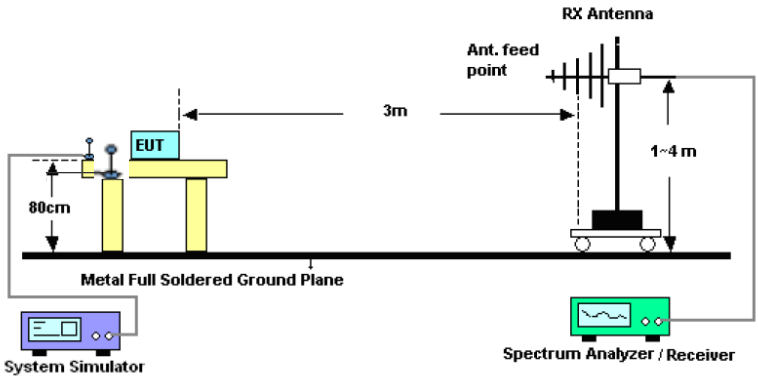


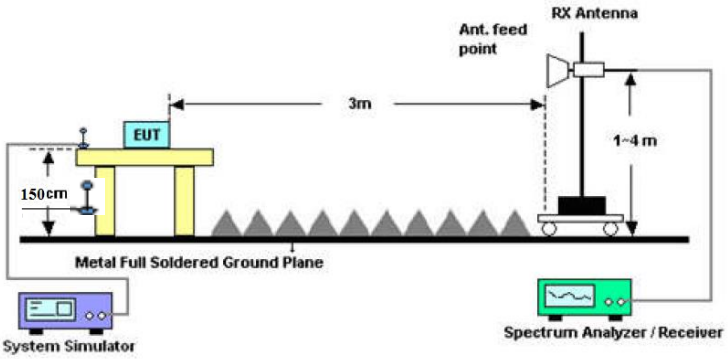
GSM1900(GPRS) Conducted Spurious Emission for Below 1G					
Channel	**RBW (KHz)**	**Test result (dBm)**	**RBW (MHz)**	**Calculate result (dBm)**	**Limit (-13dBm)**
512	100	-42.99	1	-32.99	Pass
661	100	-43.90	1	-33.90	Pass
810	100	-43.40	1	-33.40	Pass
WCDMA Band II(RMC 12.2Kbps) Conducted Spurious Emission for Below 1G					
Channel	**RBW (KHz)**	**Test result (dBm)**	**RBW (MHz)**	**Calculate result (dBm)**	**Limit (-13dBm)**
9262	100	-42.64	1	-32.64	Pass
9400	100	-43.25	1	-33.25	Pass
9538	100	-43.58	1	-33.58	Pass
WCDMA Band IV(RMC 12.2Kbps) Conducted Spurious Emission for Below 1G					
Channel	**RBW (KHz)**	**Test result (dBm)**	**RBW (MHz)**	**Calculate result (dBm)**	**Limit (-13dBm)**
1312	100	-44.13	1	-34.13	Pass
1413	100	-42.84	1	-32.84	Pass
1513	100	-42.48	1	-32.48	Pass
Compensate 10dB is for Exchange rate of RBW *Exchange rate of RBW = 10*log10(Reference bandwidth/RBW at measurement) =10[dB]* *where Reference bandwidth = 1 MHz*					

Note: *Measurements were conducted in all GMSK modulation (GPRS/EGPRS) and the worst case Mode (GPRS) was submitted only.*

5.5. Effective Radiated Power and Effective Isotropic Radiated Power Measurement

5.5.1. Test Specification

<table>
<tr><td>Test Requirement:</td><td>FCC part 22.913(a) and FCC part 24.232(c)
FCC part 27.50(d)</td></tr>
<tr><td>Test Method:</td><td>FCC KDB 971168 D01v03r01</td></tr>
<tr><td>Receiver Setup:</td><td>
<table>
<tr><td></td><td>GSM/GPRS/EDGE</td><td>WCDMA/HSPA</td></tr>
<tr><td>SPAN</td><td>500kHz</td><td>10MHz</td></tr>
<tr><td>RBW</td><td>10kHz</td><td>100kHz</td></tr>
<tr><td>VBW</td><td>30kHz</td><td>300kHz</td></tr>
<tr><td>Detector</td><td>RMS</td><td>RMS</td></tr>
<tr><td>Trace</td><td>Average</td><td>Average</td></tr>
<tr><td>Average Type</td><td>Power</td><td>Power</td></tr>
<tr><td>Sweep Count</td><td>100</td><td>100</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>GSM850: 7W ERP
PCS1900: 2W EIRP
WCDMA Band V: 7W ERP
WCDMA Band II: 2W EIRP
WCDMA Band IV: 1W EIRP</td></tr>
<tr><td>Test Setup:</td><td>From 30MHz to 1GHz
 

Above 1GHz
 
</td></tr>
</table>

Test Procedure:	1. The testing follows FCC KDB 971168 D01v03r01 Section 5.8. and ANSI / TIA-603-D-2010 Section 2.2.17. 2. The EUT was placed on a non-conductive rotating platform 0.8 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01v03. 3. Key the transmitter, then rotate the EUT 360° azimuthally and record spectrum analyzer power level (LVL) measurements at angular increments that are sufficiently small to permit resolution of all peaks. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading at each angular increment. 4. Replace the transmitter under test with a substitution antenna. The center of the antenna should be at the same location as the center of the antenna under test. 5. Connect the antenna to a signal generator with a known output power and record the path loss (in dB) as LOSS. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading. LOSS = Generator Output Power (dBm) – Analyzer reading (dBm) 6. Determine the effective radiated output power at each angular position from the readings in steps 3) and 5) using the following equation: ERP (dBm) = LVL (dBm) + LOSS (dB) 7. The maximum ERP is the maximum value determined in the preceding step. 8. Calculating ERP: ERP (dBm) = Output Power (dBm) - Losses (dB) + Antenna Gain (dBd) Antenna Gain (dBd) = Antenna Gain (dBi) - 2.15 EIRP = ERP + 2.15
Test results:	PASS

5.5.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Universal Radio Communication Tester	R&S	CMU200	110188	Jun. 28, 2024
Spectrum Analyzer	R&S	FSQ40	200061	Jun. 29, 2024
Signal Generator	HP	83623B	3614A00396	Feb. 24, 2024
Broadband Antenna	Schwarzbeck	VULB9163	340	Jul. 01, 2024
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Jul. 01, 2024
Broadband Antenna	Schwarzbeck	VULB9163	412	Jul. 01, 2024
Horn Antenna	Schwarzbeck	BBHA 9120D	1201	Jul. 01, 2024
Horn Antenna	Schwarzbeck	BBHA 9170	00956	Feb. 24, 2024
Coaxial cable	SKET	RC-18G-N-M	/	Feb. 24, 2024
Coaxial cable	SKET	RC_40G-K-M	/	Feb. 24, 2024
Antenna Mast	Keleto	RE-AM	/	/
EMI Test Software	Shurple Technology	EZ-EMC	/	/

5.5.3. Test Data

Test Result of ERP

GPRS 850 (1-solt) Radiated Power ERP					
Horizontal Polarization (Antenna Pol.)					
Frequency (MHz)	**(EUT Pol.)**	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.2	H	11.27	21.66	30.78	1.20
836.6	H	11.02	21.54	30.41	1.10
848.8	H	10.53	21.46	29.84	0.96
Vertical Polarization (Antenna Pol.)					
Frequency (MHz)	**(EUT Pol.)**	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.2	H	10.66	21.66	30.17	1.04
836.6	H	11.23	21.54	30.62	1.15
848.8	H	10.75	21.46	30.06	1.01

EGPRS 850 (1-solt) Radiated Power ERP					
Horizontal Polarization (Antenna Pol.)					
Frequency (MHz)	**(EUT Pol.)**	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.2	H	2.84	21.66	22.35	0.17
836.6	H	3.13	21.54	22.52	0.18
848.8	H	3.54	21.46	22.85	0.19
Vertical Polarization (Antenna Pol.)					
Frequency (MHz)	**(EUT Pol.)**	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.2	H	3.11	21.66	22.62	0.18
836.6	H	2.36	21.54	21.75	0.15
848.8	H	3.55	21.46	22.86	0.19

***Note**: All GPRS slot have been tested, but only the worst GPRS 1-slot show in this test item.*
***Note**: All EGPRS slot have been tested, but only the worst EGPRS 1-slot show in this test item.*

WCDMA Band V (RMC 12.2Kbps) Radiated Power ERP					
Horizontal Polarization (Antenna Pol.)					
Frequency (MHz)	**(EUT Pol.)**	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
826.4	H	0.33	21.66	19.84	0.10
836.4	H	1.15	21.54	20.54	0.11
846.6	H	1.20	21.46	20.51	0.11
Vertical Polarization (Antenna Pol.)					
Frequency (MHz)	**(EUT Pol.)**	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
826.4	H	1.16	21.66	20.67	0.12
836.4	H	0.88	21.54	20.27	0.11
846.6	H	1.22	21.46	20.53	0.11

Note: ** ERP = LVL (dBm) + Correction Factor (dB) - 2.15*
Correction Factor= S.G. Power - Cable loss + Antenna Gain- SPA. Reading

Test Result of EIRP

GPRS1900 (1-solt) Radiated Power EIRP					
Horizontal Polarization (Antenna Pol.)					
Frequency (MHz)	**(EUT Pol.)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	H	6.77	21.66	28.43	0.70
1880.0	H	7.02	21.54	28.56	0.72
1909.8	H	7.58	21.46	29.04	0.80
Vertical Polarization (Antenna Pol.)					
Frequency (MHz)	**(EUT Pol.)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	H	7.09	21.66	28.75	0.75
1880.0	H	7.54	21.54	29.08	0.81
1909.8	H	7.63	21.46	29.09	0.81

EGPRS1900 (1-solt) Radiated Power EIRP					
Horizontal Polarization (Antenna Pol.)					
Frequency (MHz)	**(EUT Pol.)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	H	1.15	21.66	22.81	0.19
1880.0	H	0.92	21.54	22.46	0.18
1909.8	H	2.50	21.46	23.96	0.25
Vertical Polarization (Antenna Pol.)					
Frequency (MHz)	**(EUT Pol.)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	H	1.23	21.66	22.89	0.19
1880.0	H	1.36	21.54	22.90	0.19
1909.8	H	1.80	21.46	23.26	0.21

***Note**: All GPRS slot have been tested, but only the worst GPRS 1-slot show in this test item*
***Note**: All EGPRS slot have been tested, but only the worst EGPRS 1-slot show in this test item*

WCDMA Band IV (RMC 12.2Kbps) Radiated Power EIRP					
Horizontal Polarization (Antenna Pol.)					
Frequency (MHz)	**(EUT Pol.)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1712.4	H	0.25	21.66	21.91	0.16
1732.6	H	0.34	21.54	21.88	0.15
1752.6	H	0.43	21.46	21.89	0.15
Vertical Polarization (Antenna Pol.)					
Frequency (MHz)	**(EUT Pol.)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1712.4	H	0.36	21.66	22.02	0.16
1732.6	H	0.48	21.54	22.02	0.16
1752.6	H	0.74	21.46	22.20	0.17

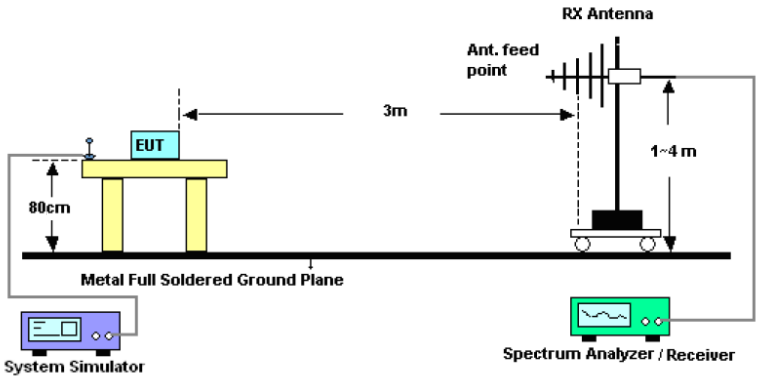
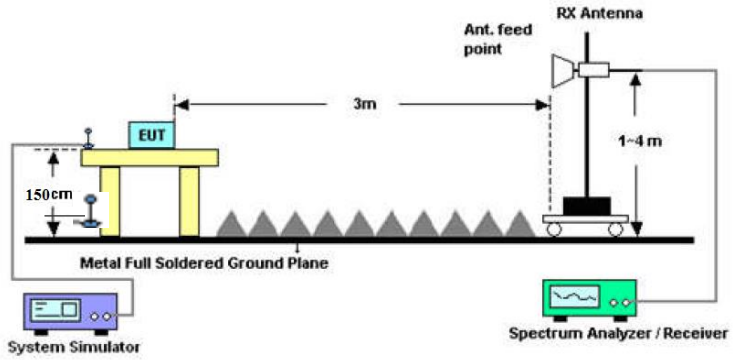
** EIRP = LVL (dBm) + Correction Factor (dB)*
Correction Factor= S.G. Power - Cable loss + Antenna Gain- SPA. Reading

WCDMA Band II (RMC 12.2Kbps) Radiated Power EIRP					
Horizontal Polarization (Antenna Pol.)					
Frequency (MHz)	**(EUT Pol.)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1852.4	H	-0.65	21.66	21.01	0.13
1880.0	H	-0.63	21.54	20.91	0.12
1907.6	H	-0.44	21.46	21.02	0.13
Vertical Polarization (Antenna Pol.)					
Frequency (MHz)	**(EUT Pol.)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1852.4	H	-0.77	21.66	20.89	0.12
1880.0	H	-0.69	21.54	20.85	0.12
1907.6	H	-0.53	21.46	20.93	0.12

Note： ** EIRP = LVL (dBm) + Correction Factor (dB)*
Correction Factor= S.G. Power - Cable loss + Substitution Antenna Gain- SPA. Reading

5.6. Field Strength of Spurious Radiation Measurement

5.6.1. Test Specification

Test Requirement:	FCC part 22.917(a) and FCC part 24.238(a) FCC part 27.53(g)
Test Method:	FCC KDB 971168 D01v03r01
Operation mode:	Refer to item 3.1
Limit:	-13dBm
Test setup:	For 30MHz~1GHz  Above 1GHz 
Test Procedure:	1. The testing follows FCC KDB 971168 D01v03r01 Section 6 and ANSI / TIA-603-D-2010 Section 2.2.12. 2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground. 3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower. 4. The table was rotated 360 degrees to determine the position of the highest spurious emission. 5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations. 6. Make the measurement with the spectrum analyzer's

	RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission. 7. A horn antenna was substituted in place of the EUT and was driven by a signal generator. 8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission. 9. Taking the record of output power at antenna port. 10. Repeat step 7 to step 8 for another polarization. 11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain 12. ERP (dBm) = EIRP - 2.15 13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band. 14. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts) = P(W) - [43 + 10log(P)] (dB) = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.
Test results:	PASS
Remark:	All modulations have been tested, but only the worst modulation show in this test item.

5.6.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Universal Radio Communication Tester	R&S	CMU200	110188	Jun. 28, 2024
Spectrum Analyzer	R&S	FSQ40	200061	Jun. 29, 2024
Signal Generator	HP	83623B	3614A00396	Feb. 24, 2024
Broadband Antenna	Schwarzbeck	VULB9163	340	Jul. 01, 2024
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Jul. 01, 2024
Broadband Antenna	Schwarzbeck	VULB9163	412	Jul. 01, 2024
Horn Antenna	Schwarzbeck	BBHA 9120D	1201	Jul. 01, 2024
Horn Antenna	Schwarzbeck	BBHA 9170	00956	Feb. 24, 2024
Coaxial cable	SKET	RC-18G-N-M	/	Feb. 24, 2024
Coaxial cable	SKET	RC_40G-K-M	/	Feb. 24, 2024
Antenna Mast	Keleto	RE-AM	/	/
EMI Test Software	Shurple Technology	EZ-EMC	/	/

5.6.3. Test Data

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dBμV/m)	Limit@3m (dBμV/m)
--	--	--
--	--	--
--	--	--
--	--	--

Note: *1. Emission Level=Reading+ Cable loss+Antenna factor-Amp factor*

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement

Band	GSM 850	Test channel:	Lowest
Test mode:		Temperature:	25°C
		Relative Humidity:	56%

Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
1648.4	Vertical	-59.51	23.12	-36.39	-13.00	PASS
2472.6	V	-67.70	23.20	-44.50		
3296.8	V	-81.22	23.28	-57.94		
1648.4	Horizontal	-59.87	23.12	-36.75		
2472.6	H	-67.27	23.20	-44.07		
3296.8	H	-78.44	23.28	-55.16		

Band	GSM 850	Test channel:	Middle
Test mode:		Temperature:	25°C
		Relative Humidity:	56%

Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
1673.2	Vertical	-61.43	23.17	-38.26	-13.00	PASS
2509.8	V	-71.67	23.26	-48.41		
3346.4	V	-80.45	23.38	-57.07		
1673.2	Horizontal	-59.36	23.17	-36.19		
2509.8	H	-67.93	23.26	-44.67		
3346.4	H	-81.11	23.38	-57.73		

Band	GSM 850	Test channel:	Highest
Test mode:		Temperature:	25°C
		Relative Humidity:	56%

Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
1697.6	Vertical	-62.03	23.23	-38.80	-13.00	PASS
2546.4	V	-72.34	23.32	-49.02		
3395.2	V	-80.19	23.44	-56.75		
1697.6	Horizontal	-58.29	23.23	-35.06		
2546.4	H	-67.27	23.32	-43.95		
3395.2	H	-82.36	23.44	-58.92		

Band	PCS 1900	Test channel:	Lowest
Test mode:		Temperature:	25°C
		Relative Humidity:	56%

Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
3700.4	Vertical	-67.03	23.49	-43.54	-13.00	PASS
5550.6	V	-76.40	23.75	-52.65		
7400.8	V	-83.75	23.89	-59.86		
3700.4	Horizontal	-64.28	23.49	-40.79		
5550.6	H	-70.15	23.75	-46.40		
7400.8	H	-80.28	23.89	-56.39		

Band	PCS 1900	Test channel:	Middle
Test mode:		Temperature:	25°C
		Relative Humidity:	56%

Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
3760.0	Vertical	-67.05	23.58	-43.47	-13.00	PASS
5640.0	V	-76.87	23.85	-53.02		
7520.0	V	-76.20	23.99	-52.21		
3760.0	Horizontal	-64.81	23.58	-41.23		
5640.0	H	-76.57	23.85	-52.72		
7520.0	H	-82.68	23.99	-58.69		

Band	PCS 1900	Test channel:	Highest
Test mode:		Temperature:	25°C
		Relative Humidity:	56%

Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
3819.6	Vertical	-65.55	23.64	-41.91	-13.00	PASS
5729.4	V	-75.14	23.93	-51.21		
7639.2	V	-82.09	24.08	-58.01		
3819.6	Horizontal	-64.54	23.64	-40.90		
5729.4	H	-70.44	23.93	-46.51		
7639.2	H	-82.32	24.08	-58.24		

Band	WCDMA Band V				Test channel:	Lowest
Test mode:	RMC 12.2Kbps Link (QPSK)				Temperature:	25°C
					Relative Humidity:	56%
Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.						
Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
1652.8	Vertical	-73.84	23.14	-50.70	-13.00	PASS
2479.2	V	-80.61	23.23	-57.38		
3305.6	V	-79.48	23.34	-56.14		
1652.8	Horizontal	-70.91	23.14	-47.77		
2479.2	H	-80.86	23.23	-57.63		
3305.6	H	-81.46	23.34	-58.12		

Band	WCDMA Band V				Test channel:	Middle
Test mode:	RMC 12.2Kbps Link (QPSK)				Temperature:	25°C
					Relative Humidity:	56%
Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.						
Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
1673.2	Vertical	-70.80	23.17	-47.63	-13.00	PASS
2509.8	V	-80.67	23.26	-57.41		
3346.4	V	-81.59	23.38	-58.21		
1673.2	Horizontal	-69.42	23.17	-46.25		
2509.8	H	-82.55	23.26	-59.29		
3346.4	H	-79.90	23.38	-56.52		

Band	WCDMA Band V				Test channel:	Highest
Test mode:	RMC 12.2Kbps Link (QPSK)				Temperature:	25°C
					Relative Humidity:	56%
Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.						
Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
1693.2	Vertical	-75.78	23.20	-52.58	-13.00	PASS
2539.8	V	-81.19	23.29	-57.90		
3386.4	V	-85.04	23.42	-61.62		
1693.2	Horizontal	-71.07	23.20	-47.87		
2539.8	H	-80.20	23.29	-56.91		
3386.4	H	-84.69	23.42	-61.27		

Band	WCDMA Band IV				Test channel:	Lowest
Test mode:	RMC 12.2Kbps Link (QPSK)				Temperature:	25°C
					Relative Humidity:	56%
Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.						
Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
2452.3	Vertical	-82.79	23.16	-59.63	-13.00	PASS
3424.8	V	-82.02	23.37	-58.65		
5137.2	V	-83.27	23.65	-59.62		
2452.3	Horizontal	-81.61	23.16	-58.45		
3424.8	H	-80.86	23.37	-57.49		
5137.2	H	-80.54	23.65	-56.89		

Band	WCDMA Band IV				Test channel:	Middle
Test mode:	RMC 12.2Kbps Link (QPSK)				Temperature:	25°C
					Relative Humidity:	56%
Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.						
Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
2641.3	Vertical	-82.22	23.30	-58.92	-13.00	PASS
3465.2	V	-79.14	23.42	-55.72		
5197.8	V	-84.33	23.73	-60.60		
2641.3	Horizontal	-80.96	23.30	-57.66		
3465.2	H	-83.26	23.42	-59.84		
5197.8	H	-83.85	23.73	-60.12		

Band	WCDMA Band IV				Test channel:	Highest
Test mode:	RMC 12.2Kbps Link (QPSK)				Temperature :	25°C
					Relative Humidity:	56%
Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.						
Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
3102.2	Vertical	-81.80	23.35	-58.45	-13.00	PASS
3505.2	V	-81.59	23.45	-58.14		
5257.8	V	-79.90	23.82	-56.08		
3102.2	Horizontal	-81.73	23.35	-58.38		
3505.2	H	-82.04	23.45	-58.59		
5257.8	H	-85.24	23.82	-61.42		

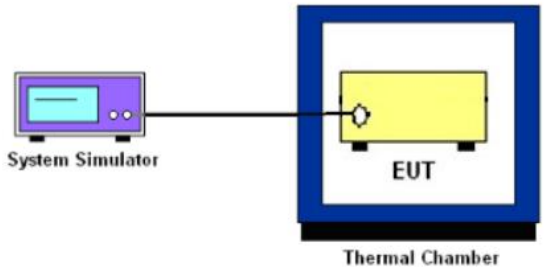
Band	WCDMA Band II				Test channel:	Lowest
Test mode:	RMC 12.2Kbps Link (QPSK)				Temperature:	25°C
					Relative Humidity:	56%
Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.						
Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
3704.8	Vertical	-70.68	23.53	-47.15	-13.00	PASS
5557.2	V	-82.71	23.78	-58.93		
7409.6	V	-85.38	23.92	-61.46		
3704.8	Horizontal	-72.91	23.53	-49.38		
5557.2	H	-80.54	23.78	-56.76		
7409.6	H	-84.95	23.92	-61.03		

Band	WCDMA Band II				Test channel:	Middle
Test mode:	RMC 12.2Kbps Link (QPSK)				Temperature:	25°C
					Relative Humidity:	56%
Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.						
Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
3760.0	Vertical	-81.02	23.58	-57.44	-13.00	PASS
5640.0	V	-84.58	23.85	-60.73		
7520.0	V	-74.12	23.99	-50.13		
3760.0	Horizontal	-79.50	23.58	-55.92		
5640.0	H	-84.92	23.85	-61.07		
7520.0	H	-82.13	23.99	-58.14		

Band	WCDMA Band II				Test channel:	Highest
Test mode:	RMC 12.2Kbps Link (QPSK)				Temperature:	25°C
					Relative Humidity:	56%
Note: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.						
Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
3815.2	Vertical	-73.95	23.62	-50.33	-13.00	PASS
5722.8	V	-85.97	23.90	-62.07		
7630.4	V	-86.06	24.05	-62.01		
3815.2	Horizontal	-72.83	23.62	-49.21		
5722.8	H	-81.12	23.90	-57.22		
7630.4	H	-84.97	24.05	-60.92		

5.7. Frequency Stability Measurement

5.7.1. Test Specification

Test Requirement:	FCC Part 2.1055 ; FCC Part 22.355 ; FCC Part 24.235 FCC Part 27.54
Test Method:	FCC KDB 971168 D01v03r01
Operation mode:	Refer to item 3.1
Limit:	FCC Part 22.355 : ±2.5 ppm FCC Part 24.235 : The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.
Test Setup:	
Test Procedure:	**Test Procedures for Temperature Variation** 1. The testing follows FCC KDB 971168 D01v03r01 Section 9.0. 2. The EUT was set up in the thermal chamber and connected with the system simulator. 3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute. 4. With power OFF, the temperature was raised in 10°C steps up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute. **Test Procedures for Voltage Variation** 1. The testing follows FCC KDB 971168 D01v03r01 Section 9.0. 2. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator. 3. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT. 4. The variation in frequency was measured for the worst case.
Test Result:	PASS
Remark:	All three channels of all modulations have been tested, but only the worst channel and the worst modulation show in this test item.

5.7.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Universal Radio Communication Tester	R&S	CMU200	110188	Jun. 28, 2024
Programable tempratuce and humidity chamber	JQ	JQ-2000	510101234	Jun. 28, 2024
DC power supply	Kingrang	KR3005K	/	Jun. 28, 2024
Combiner Box	AT890-RFB	Ascentest	/	/

5.7.3. Test Data

Test Result of Temperature Variation

Band:	GSM 850	Channel:	190
Limit (ppm):	2.5	Frequency:	836.6MHz

Temperature (°C)	Deviation (ppm)	Result
50	0.016	PASS
40	0.014	
30	0.013	
20	0.011	
10	0.012	
0	0.013	
-10	0.015	
-20	0.017	
-30	0.018	

Band:	GSM 1900	Channel:	661
Limit (ppm):	Note	Frequency:	1880MHz

Temperature (°C)	Deviation (ppm)	Result
50	0.019	PASS
40	0.017	
30	0.015	
20	0.014	
10	0.012	
0	0.014	
-10	0.016	
-20	0.018	
-30	0.020	

Note: *The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.*

Band:	WCDMA Band V	Channel:	4182
Limit (ppm):	2.5	Frequency:	836.4MHz

Temperature (°C)	RMC 12.2Kbps Deviation (ppm)	Result
50	0.020	PASS
40	0.018	
30	0.015	
20	0.014	
10	0.016	
0	0.017	
-10	0.018	
-20	0.020	
-30	0.021	

Band:	WCDMA Band IV	Channel:	1413
Limit (ppm):	Note	Frequency:	1732.6

Temperature (°C)	RMC 12.2Kbps Deviation (ppm)	Result
50	0.022	PASS
40	0.020	
30	0.018	
20	0.017	
10	0.015	
0	0.016	
-10	0.018	
-20	0.020	
-30	0.022	

Band:	WCDMA Band II	Channel:	9400
Limit (ppm):	Note	Frequency:	1880MHz

Temperature (°C)	RMC 12.2Kbps Deviation (ppm)	Result
50	0.020	PASS
40	0.017	
30	0.015	
20	0.013	
10	0.014	
0	0.016	
-10	0.018	
-20	0.020	
-30	0.023	

Note: *The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.*

Test Result of Voltage Variation

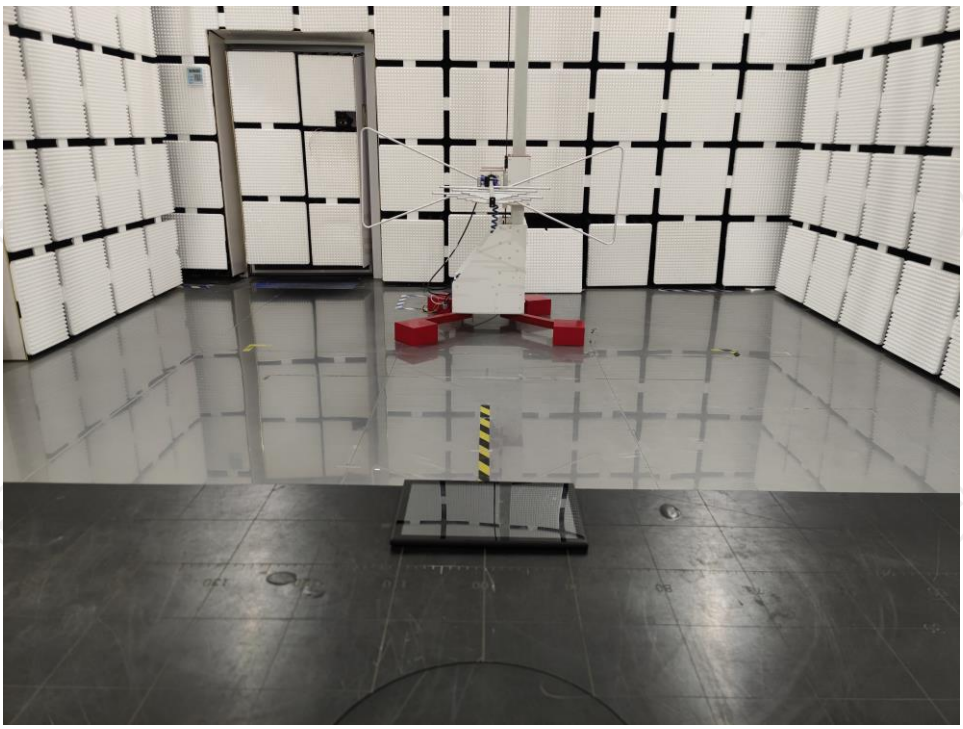
Band & Channel	Mode	Voltage (Volt)	Deviation (ppm)	Limit (ppm)	Result
GSM 850 CH190	GPRS class 12 Link	4.2	+0.017	2.5	PASS
		3.7	+0.014		
		BEP	+0.016		
GSM 1900 CH661	GPRS class 12 Link	4.2	+0.014	(Note 3.)	
		3.7	+0.020		
		BEP	+0.016		
WCDMA Band V CH4182	RMC 12.2Kbps	4.2	-0.011	2.5	
		3.7	-0.013		
		BEP	-0.015		
WCDMA Band IV CH1413	RMC 12.2Kbps	4.2	-0.015		
		3.7	-0.017		
		BEP	-0.019		
WCDMA Band II CH9400	RMC 12.2Kbps	4.2	-0.013	(Note 3.)	
		3.7	-0.015		
		BEP	-0.018		

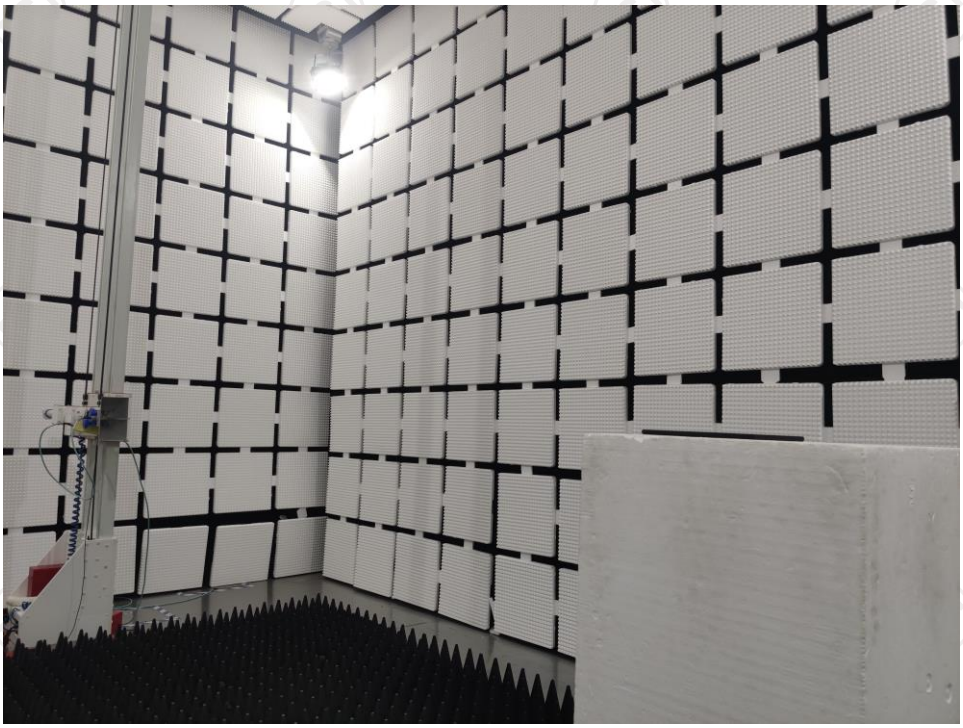
Note:

1. Normal Voltage = 3.7V.
2. Battery End Point (BEP) = 3.5V.
3. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

Appendix B: Photographs of Test Setup

Radiated Emission





Appendix C: Photographs of EUT

Refer to the test report No. TCT230811E032

********END OF REPORT********