TEST REPORT

Applicant Name:	Shenzhen Youmi Intelligent Technology Co., Ltd.
Address:	406-407 Jinqi Zhigu Building, 4/F, 1 Tangling Road, Nanshan District, Shenzhen City, China
Report Number:	SZ1231208-73855E-RF-00A
FCC ID:	2ATZ4-G7TABPRO

Test Standard (s)

FCC PART 27; FCC PART 22H; FCC PART 24E

Sample Description

Product Type:	Smart Tablet
Model No.:	TG2403GBA
Multiple Model(s) No.:	N/A
Trade Mark:	UMIDIGI
Date Received:	2024/01/26
Issue Date:	2024/03/15

Test Result:	Pass▲

▲ In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Andy Yu
RF Engineer

Approved By:

Nancy Wang
RF Supervisor

Note: The information marked # is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report. Customer model name, addresses, names, trademarks etc. are included.

This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk "▼".

TABLE OF CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	SZ1231208-73855E-RF-00A	Original Report	2024/03/15

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Smart Tablet			
Tested Model	TG2403GBA			
Multiple Model(s)	N/A			
Frequency Range	GSM 850: 824-849MHz(TX); 869-894MHz(RX) PCS 1900: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 5: 824-849MHz(TX); 869-894MHz(RX) LTE Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) LTE Band 5: 824-849MHz(TX); 869-894MHz(RX) LTE Band 7: 2500-2570MHz(TX); 2620-2690MHz(TX) LTE Band 12: 699-716MHz(TX); 729-746MHz(RX) LTE Band 41: 2535-2655MHz(TX/RX)			
Modulation Technique	2G: GMSK; 3G: BPSK, QPSK, 16QAM 4G: BPSK,16QAM			
Antenna Specification#	Operation Bands	Antenna Frequency Range (MHz)	Antenna Gain (GT) (dBi)	LC (dB)
	GSM850	824-849	-4.35	0.5
	PCS1900	1850-1910	0.15	0.8
	WCDMA B2	1850-1910	0.15	0.8
	WCDMA B5	824-849	-4.35	0.5
	LTE B2	1850-1910	0.15	0.8
	LTE B5	824-849	-4.35	0.5
	LTE B7	2500-2570	2.3	0.8
	LTE B12	699-716	-6.55	0.5
	LTE B41	2535-2655	2.3	0.8
	Note: Lc= Signal Attenuation in the connecting cable between the transmitter and antenna, in dB.			
Voltage Range	DC 3.85V from battery or DC 5V/9V/12V from adapter			
Sample serial number	2F2C-2 for Radiated Emissions Test 2F2C-1 for RF Conducted Test (Assigned by BACL, Shenzhen)			
Sample/EUT Status	Good condition			
Normal/Extreme Condition#	L.V.: Low Voltage 3.4V_{DC}; Low Temperature: -10°C N.V.: Normal Voltage 3.85$V_{DC;}$ Normal Temperature: 25°C H.V.: High Voltage 4.7V_{DC}; High Temperature: 50°C			
Adapter Information	Model:QZ-02002AC00 Input: AC 100-240V~50/60Hz 0.5A Output: DC 5.0V.3.0A or 9.0V.2.22A or 12.0V.1.67A(20.0W)			

Objective

This test report is in accordance with Part 2-Subpart J, Part 22-Subpart H, Part24-Subpart E, and Subpart 27 of the Federal Communication Commission's rules.

The objective is to determine the compliance of the EUT with FCC rules for output power, modulation characteristic, occupied bandwidth, and spurious emission at antenna terminal, spurious radiated emission, frequency stability and band edge.

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2-Subpart J as well as the following parts:

Part 22 Subpart H - Public Mobile Services
Part 24 Subpart E - Personal Communication Services
Part 27 - Miscellaneous Wireless Communications Services

ANSI C63.26-2015: American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
KDB 971168 D01: Power Meas License Digital Systems v03r01

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Each test item follows test standards and with no deviation.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		±5%
RF output power, conducted		0.72 dB(k=2, 95% level of confidence)
Unwanted Emission, conducted		1.75 dB(k=2, 95% level of confidence)
RF Frequency		213.55 Hz(k=2, 95% level of confidence)
Radiated Emissions	30MHz~200MHz (Horizontal)	4.48dB(k=2, 95% level of confidence)
	30MHz~200MHz (Vertical)	4.55dB(k=2, 95% level of confidence)
	200MHz~1000MHz (Horizontal)	4.85dB(k=2, 95% level of confidence)
	200MHz~1000MHz (Vertical)	5.05dB(k=2, 95% level of confidence)
	1GHz - 6GHz	5.35dB(k=2, 95% level of confidence)
	6GHz - 18GHz	5.44dB(k=2, 95% level of confidence)
	18GHz - 40GHz	5.16dB(k=2, 95% level of confidence)
Temperature		±1℃
Humidity		±1%
Supply voltages		±0.4%

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 715558, the FCC Designation No. : CN5045.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The final qualification test was performed with the EUT operating at normal mode.

Frequency Band	Bandwidth (MHz)	Test Frequency (MHz)		
		Low	Middle	High
GSM850	0.25	824.2	836.6	848.8
PCS1900	0.25	1850.2	1880	1909.8
WCDMA B2	4.2	1852.4	1880	1907.6
WCDMA B5	4.2	826.4	836.6	846.6
LTE B2	1.4	1850.7	1880	1909.3
	3	1851.5	1880	1908.5
	5	1852.5	1880	1907.5
	10	1855	1880	1905
	15	1857.5	1880	1902.5
	20	1860	1880	1900
LTE B5	1.4	824.7	836.5	848.3
	3	825.5	836.5	847.5
	5	826.5	836.5	846.5
	10	829	836.5	844
LTE B7	5	2502.5	2535	2567.5
	10	2505	2535	2565
	15	2507.5	2535	2562.5
	20	2510	2535	2560
LTE B12	1.4	699.7	707.5	715.3
	3	700.5	707.5	714.5
	5	701.5	707.5	713.5
	10	704.0	707.5	711.0
LTE B41	5	2537.5	2595	2652.5
	10	2540	2595	2650
	15	2542.5	2595	2647.5
	20	2545	2595	2645

Equipment Modifications

No modification was made to the EUT.

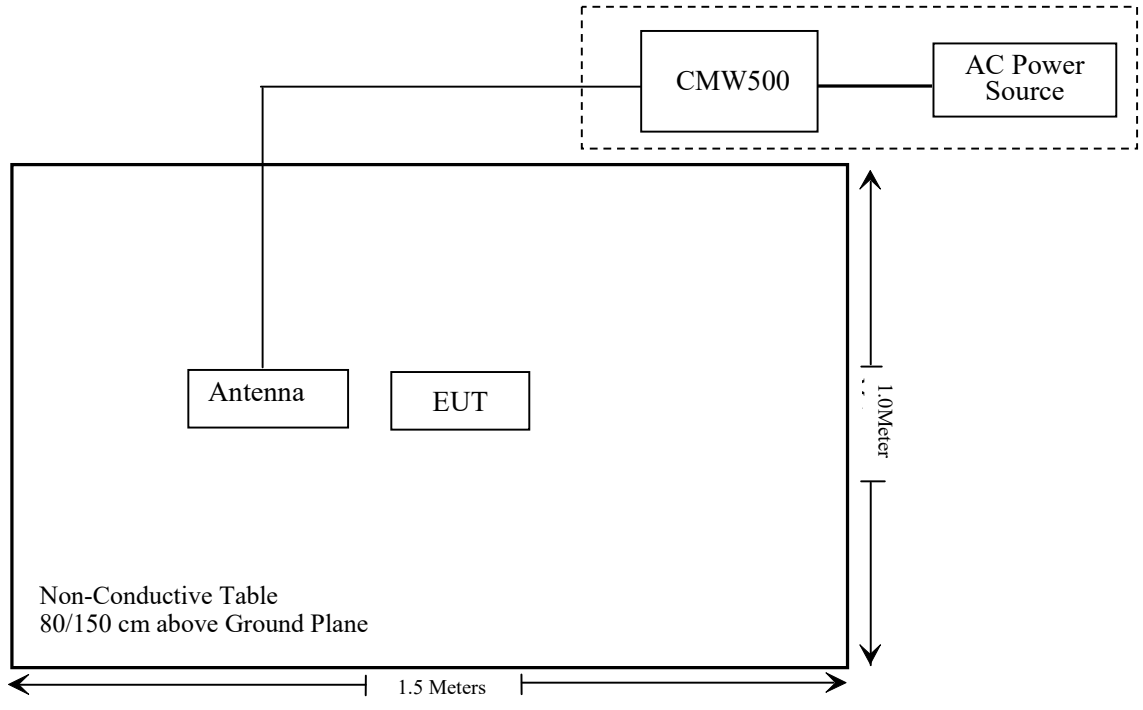
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	154606

Support Cable Description

Cable Description	Length (m)	From / Port	To
Unshielded detachable AC cable	1.2	AC Power	CMW500

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 ,§2.1093	RF Exposure (SAR)	Compliant
§2.1046; § 22.913 (a) (d); § 24.232 (c) (d); §27.50 (a) (c) (d) (h) (k)	RF Output Power	Compliant
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905; § 22.917; § 24.238; §27.53	Occupied Bandwidth	Compliant
§ 2.1051; §22.917 (a); § 24.238 (a); §27.53;	Spurious Emissions at Antenna Terminal	Compliant
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53	Field Strength of Spurious Radiation	Compliant
§ 22.917 (a); § 24.238 (a); §27.53 (a) (g) (h)(m)(n)	Band Edge	Compliant
§ 2.1055; § 22.355; § 24.235; §27.54;	Frequency stability	Compliant

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
R&S	EMI Test Receiver	ESR3	102455	2024/01/16	2025/01/15
Sonoma instrument	Pre-amplifier	310 N	186238	2023/06/08	2024/06/07
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2023/07/20	2024/07/19
Unknown	Cable	Chamber Cable 1	F-03-EM236	2023/08/03	2024/08/02
Unknown	Cable	Chamber Cable 4	EC-007	2023/08/03	2024/08/02
Audix	EMI Test software	E3	19821b(V9)	NCR	NCR
COM-POWER	Dipole Antenna	AD-100	721027	NCR	NCR
Rohde & Schwarz	Spectrum Analyzer	FSV40	101605	2023/04/18	2024/04/17
COM-POWER	Pre-amplifier	PA-122	181919	2023/06/29	2024/06/28
Schwarzbeck	Horn Antenna	BBHA9120D(1201)	1143	2023/07/26	2024/07/25
A.H.System	Horn Antenna	SAS-200/571	135	2021/07/14	2024/07/13
Unknown	RF Cable	KMSE	0735	2023/10/08	2024/10/07
Unknown	RF Cable	UFA147	219661	2023/10/08	2024/10/07
Unknown	RF Cable	XH750A-N	J-10M	2023/10/08	2024/10/07
Agilent	Signal Generator	N5183A	MY50140588	2023/12/18	2024/12/17
Audix	EMI Test software	E3	191218(V9)	NCR	NCR
Rohde & Schwarz	Spectrum Analyzer	FSV40	101605	2023/04/18	2024/04/17
A.H.System	Pre-amplifier	PAM-1840VH	190	2023/08/03	2024/08/02
Electro-Mechanics Co	Horn Antenna	3116	9510-2270	2023/09/18	2026/09/17
Electro-Mechanics Co	Horn Antenna	3116	2026	2023/09/18	2026/09/17
UTIFLEX	RF Cable	NO. 13	232308-001	2023/08/03	2024/08/02
RF Conducted Test					
Rohde & Schwarz	SPECTRUM ANALYZER	FSU26	200982	2023/12/18	2024/12/17
R&S	spectrum analyzer	FSV40	101942	2023/12/18	2024/12/17
BACL	Temperature & Humidity Chamber	BTH-150-40	30145	2024/01/16	2025/01/15
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	146520	2023/06/08	2024/06/07
instek	DC Power Supply	GPS-3030DD	EM832096	NCR	NCR
Fluke	Digital Multimeter	287	19000011	2023/06/08	2024/06/07
WEINSCHEL	3dB Attenuator	Unknown	F-03-EM220	2023/07/04	2024/07/03
WEINSCHEL	Power Splitter	1515	RH397	2023/07/04	2024/07/03
Micro-Tronics	RF Cable	8082176	W6102	2023/07/04	2024/07/03

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

FCC §1.1307(b) & §2.1093 - RF EXPOSURE INFORMATION

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliant, please refer to the SAR report: SZ1231208-73855E-20A.

FCC§2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 22H,24E&27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

FCC § 2.1046, § 22.913 (a) (d) & § 24.232 (c) (d) &§27.50 (a) (c) (d) (h) (k) - RF OUTPUT POWER

Applicable Standard

According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (c),mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

According to §27.50 (a)(3) *Mobile and portable stations.*
(i) For mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band, the average EIRP must not exceed 50 milliwatts within any 1 megahertz of authorized bandwidth, *except that* for mobile and portable stations compliant with 3GPP LTE standards or another advanced mobile broadband protocol that avoids concentrating energy at the edge of the operating band the average EIRP must not exceed 250 milliwatts within any 5 megahertz of authorized bandwidth but may exceed 50 milliwatts within any 1 megahertz of authorized bandwidth. For mobile and portable stations using time division duplexing (TDD) technology, the duty cycle must not exceed 38 percent in the 2305-2315 MHz and 2350-2360 MHz bands. Mobile and portable stations using FDD technology are restricted to transmitting in the 2305-2315 MHz band. Power averaging shall not include intervals in which the transmitter is off.
(ii) Mobile and portable stations are not permitted to transmit in the 2315-2320 MHz and 2345-2350 MHz bands.
(iii) *Automatic transmit power control.* Mobile and portable stations transmitting in the 2305-2315 MHz band or in the 2350-2360 MHz band must employ automatic transmit power control when operating so the stations operate with the minimum power necessary for successful communications.
(iv) *Prohibition on external vehicle-mounted antennas.* The use of external vehicle-mounted antennas for mobile and portable stations transmitting in the 2305-2315 MHz band or the 2350-2360 MHz band is prohibited.

According to §27.50(c), Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP. And Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

According to §27.50(d),Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

According to §27.50 (h) The following power limits shall apply in the BRS and EBS:
(2)Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

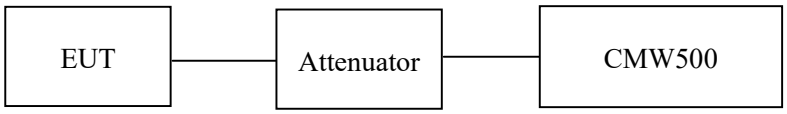
According to §27.50 (k) The following power requirements apply to stations transmitting in the 3450 – 3550 MHz band:
(3) Mobile devices are limited to 1Watt (30 dBm) EIRP. Mobile devices operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB.

Test Procedure

Conducted method: ANSI C63.26-2015 Section 5.2

The RF output of the transmitter was connected to the CMW500 through sufficient attenuation.



Test Data

Environmental Conditions

Temperature:	23~24.5 ℃
Relative Humidity:	48~56 %
ATM Pressure:	101.0kPa

The testing was performed by Bruce Lin from 2024-02-28 to 2024-03-13.

Test Result: Compliant

Cellular Band (Part 22H)

GSM 850

Test Mode	Conducted Average Output Power (dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
	Lowest Channel	Middle Channel	Highest Channel		
GSM	24.28	**24.40**	24.18	17.40	38.45
Note: ERP= Conducted Power(dBm) - L_C(dB) + G_T(dBd) G_T(dBd)=G_T(dBi)-2.15					

WCAMA B5

Test Mode	Conducted Average Output Power (dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
	Lowest Channel	Middle Channel	Highest Channel		
WCDMA R99	16.63	**16.76**	16.64	9.76	38.45
Note: ERP= Conducted Power(dBm) - L_C(dB) + G_T(dBd) G_T(dBd)=G_T(dBi)-2.15					

PCS Band (Part 24E)

PCS 1900

Test Mode	Conducted Average Output Power (dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
	Lowest Channel	Middle Channel	Highest Channel		
GSM	24.32	24.38	24.35	23.73	33
Note: EIRP=Conducted Power(dBm) - L_C(dB) + G_T(dBi)					

WCDMA B2

Test Mode	Conducted Average Output Power (dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
	Lowest Channel	Middle Channel	Highest Channel		
WCDMA R99	**16.77**	16.70	16.66	16.12	33
Note: EIRP=Conducted Power(dBm) - L_C(dB) + G_T(dBi)					

LTE Band
Band 2

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
1.4MHz QPSK	RB1#0	16.51	16.34	16.20	16.04	33
	RB1#3	16.60	16.39	16.24		
	RB1#5	16.51	16.33	16.17		
	RB3#0	16.68	16.40	16.32		
	RB3#3	**16.69**	16.42	16.29		
	RB6#0	15.71	15.52	15.36		
1.4MHz 16QAM	RB1#0	15.57	15.34	15.28	15.08	33
	RB1#3	15.66	15.37	15.38		
	RB1#5	15.55	15.30	15.27		
	RB3#0	**15.73**	15.59	15.32		
	RB3#3	**15.73**	15.62	15.33		
	RB6#0	14.70	14.55	14.44		
3MHz QPSK	RB1#0	16.42	16.21	16.07	15.83	33
	RB1#8	**16.48**	16.25	16.16		
	RB1#14	16.36	16.17	16.05		
	RB6#0	15.56	15.37	15.30		
	RB6#9	15.52	15.40	15.17		
	RB15#0	15.58	15.40	15.28		
3MHz 16QAM	RB1#0	15.40	15.81	15.19	15.2	33
	RB1#8	15.52	**15.85**	15.27		

	RB1#14	15.44	15.71	15.18		
	RB6#0	14.59	14.51	14.36		
	RB6#9	14.50	14.43	14.30		
	RB15#0	14.64	14.42	14.19		
5MHz QPSK	RB1#0	16.73	16.50	16.35	16.17	33
	RB1#13	**16.82**	16.59	16.45		
	RB1#24	16.65	16.45	16.32		
	RB15#0	15.79	15.49	15.46		
	RB15#10	15.56	15.46	15.20		
	RB25#0	15.66	15.41	15.33		
5MHz 16QAM	RB1#0	15.61	15.40	15.61	12.95	33
	RB1#13	15.74	15.50	**15.75**		
	RB1#24	15.63	15.34	15.61		
	RB15#0	14.79	14.50	14.45		
	RB15#10	14.64	14.45	14.15		
	RB25#0	14.73	14.50	14.34		
10MHz QPSK	RB1#0	**16.74**	16.53	16.32	15.1	33
	RB1#25	16.72	16.54	16.40		
	RB1#49	16.69	16.45	16.28		
	RB25#0	15.81	15.41	15.15		
	RB25#25	15.56	15.34	15.04		
	RB50#0	15.72	15.39	15.12		
10MHz 16QAM	RB1#0	15.87	15.56	15.95	15.35	33
	RB1#25	15.91	15.57	**16.00**		
	RB1#49	15.80	15.47	15.99		
	RB25#0	14.85	14.48	14.18		
	RB25#25	14.62	14.43	14.14		
	RB50#0	14.74	14.40	14.12		
15MHz QPSK	RB1#0	16.73	16.60	16.38	16.11	33
	RB1#38	**16.76**	16.69	16.48		
	RB1#74	16.60	16.49	16.36		
	RB36#0	15.78	15.42	15.20		
	RB36#39	15.58	15.40	15.25		
	RB75#0	15.68	15.43	15.28		
15MHz 16QAM	RB1#0	16.14	15.71	15.92	15.93	33
	RB1#38	**16.58**	15.75	15.94		
	RB1#74	16.39	15.60	15.80		
	RB36#0	14.89	14.46	14.21		
	RB36#39	14.78	14.46	14.21		
	RB75#0	14.81	14.45	14.21		
20MHz QPSK	RB1#0	16.64	16.55	16.25	16.13	33
	RB1#50	**16.78**	16.65	16.43		
	RB1#99	16.44	16.39	16.22		
	RB50#0	15.96	15.26	15.30		
	RB50#50	15.81	15.24	15.32		
	RB100#0	15.90	15.23	15.32		

20MHz 16QAM	RB1#0	16.20	15.79	15.93	15.75	33
	RB1#50	**16.40**	15.87	16.02		
	RB1#99	16.06	15.59	15.80		
	RB50#0	15.01	14.23	14.29		
	RB50#50	14.82	14.21	14.30		
	RB100#0	14.89	14.24	14.35		
Note: EIRP=Conducted Power(dBm) - L_C(dB) + G_T(dBi)						

Band 5

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
1.4MHz QPSK	RB1#0	16.78	16.82	16.84	9.99	38.45
	RB1#3	16.88	16.87	16.93		
	RB1#5	16.82	16.82	16.87		
	RB3#0	16.96	**16.99**	16.95		
	RB3#3	16.98	16.95	**16.99**		
	RB6#0	16.01	16.02	16.03		
1.4MHz 16QAM	RB1#0	15.85	15.83	15.92	9.19	38.45
	RB1#3	15.90	15.91	16.09		
	RB1#5	15.88	15.81	15.96		
	RB3#0	16.05	16.13	15.95		
	RB3#3	16.07	**16.19**	16.00		
	RB6#0	15.14	15.18	15.18		
3MHz QPSK	RB1#0	16.69	16.63	16.69	9.82	38.45
	RB1#8	16.79	16.72	**16.82**		
	RB1#14	16.67	16.62	16.72		
	RB6#0	15.84	15.86	15.87		
	RB6#9	15.92	15.81	15.88		
	RB15#0	15.88	15.86	15.91		
3MHz 16QAM	RB1#0	15.69	16.37	15.84	9.38	38.45
	RB1#8	15.83	**16.38**	15.96		
	RB1#14	15.72	16.22	15.84		
	RB6#0	15.00	15.15	15.05		
	RB6#9	14.98	15.07	15.09		
	RB15#0	15.02	15.08	14.98		
5MHz QPSK	RB1#0	17.00	17.02	16.99	10.14	38.45
	RB1#13	**17.14**	17.12	17.09		
	RB1#24	17.00	17.01	17.01		
	RB15#0	15.91	16.09	15.98		
	RB15#10	16.00	15.92	15.82		
	RB25#0	16.02	16.03	15.88		
5MHz 16QAM	RB1#0	15.85	16.30	16.05	9.39	38.45
	RB1#13	16.01	**16.39**	16.18		
	RB1#24	15.85	16.28	16.11		

	RB15#0	15.12	15.18	15.14		
	RB15#10	15.15	15.08	14.97		
	RB25#0	15.19	15.22	15.09		
10MHz QPSK	RB1#0	17.09	17.05	16.96	10.11	38.45
	RB1#25	**17.11**	17.08	17.00		
	RB1#49	17.06	16.97	17.01		
	RB25#0	15.93	16.10	15.87		
	RB25#25	15.99	15.93	15.85		
	RB50#0	16.00	16.05	15.88		
10MHz 16QAM	RB1#0	16.15	16.15	16.66	9.71	38.45
	RB1#25	16.22	16.07	**16.71**		
	RB1#49	16.17	16.02	16.67		
	RB25#0	15.12	15.36	15.06		
	RB25#25	15.18	15.23	15.05		
	RB50#0	15.12	15.18	15.02		

Note:
ERP= Conducted Power(dBm) - L_C(dB) + G_T(dBd)
G_T(dBd)=G_T(dBi)-2.15

Band 7

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
5MHz QPSK	RB1#0	16.54	16.42	16.24	18.16	33
	RB1#13	**16.66**	16.54	16.40		
	RB1#24	16.48	16.35	16.25		
	RB15#0	15.53	15.42	15.27		
	RB15#10	15.63	15.40	15.23		
	RB25#0	15.61	15.42	15.32		
5MHz 16QAM	RB1#0	15.65	15.34	15.61	17.28	33
	RB1#13	**15.78**	15.48	15.72		
	RB1#24	15.60	15.35	15.57		
	RB15#0	14.65	14.54	14.31		
	RB15#10	14.74	14.52	14.22		
	RB25#0	14.69	14.59	14.37		
10MHz QPSK	RB1#0	**16.58**	16.45	16.34	18.08	33
	RB1#25	16.56	16.39	16.32		
	RB1#49	16.50	16.36	16.28		
	RB25#0	15.54	15.49	15.28		
	RB25#25	15.61	15.45	15.27		
	RB50#0	15.60	15.50	15.36		
10MHz 16QAM	RB1#0	15.68	**16.19**	15.52	17.69	33
	RB1#25	15.59	16.16	15.50		
	RB1#49	15.55	16.11	15.45		
	RB25#0	14.68	14.59	14.45		

	RB25#25	14.77	14.57	14.39		
	RB50#0	14.67	14.56	14.40		
15MHz QPSK	RB1#0	16.58	16.41	16.22	18.15	33
	RB1#38	**16.65**	16.47	16.33		
	RB1#74	16.49	16.33	16.14		
	RB36#0	15.43	15.35	15.20		
	RB36#39	15.50	15.32	15.15		
	RB75#0	15.47	15.37	15.19		
15MHz 16QAM	RB1#0	15.76	15.94	16.01	17.56	33
	RB1#38	15.82	16.02	**16.06**		
	RB1#74	15.65	15.88	15.94		
	RB36#0	14.52	14.46	14.29		
	RB36#39	14.58	14.38	14.24		
	RB75#0	14.53	14.38	14.24		
20MHz QPSK	RB1#0	16.45	16.43	16.31	18.03	33
	RB1#50	**16.53**	16.49	16.41		
	RB1#99	16.31	16.31	16.21		
	RB50#0	15.47	15.46	15.35		
	RB50#50	15.56	15.37	15.27		
	RB100#0	15.50	15.45	15.31		
20MHz 16QAM	RB1#0	16.11	15.71	15.59	17.74	33
	RB1#50	**16.24**	15.79	15.70		
	RB1#99	15.97	15.62	15.48		
	RB50#0	14.45	14.51	14.39		
	RB50#50	14.60	14.46	14.28		
	RB100#0	14.57	14.50	14.32		
Note: EIRP=Conducted Power(dBm) - L_C(dB) + G_T(dBi)						

Band 12

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
1.4MHz QPSK	RB1#0	17.37	17.35	17.32	8.38	34.77
	RB1#3	17.49	17.40	17.34		
	RB1#5	17.37	17.33	17.29		
	RB3#0	17.47	17.44	17.40		
	RB3#3	**17.58**	17.47	17.41		
	RB6#0	16.64	16.60	16.58		
1.4MHz 16QAM	RB1#0	16.46	16.49	16.48	7.61	34.77
	RB1#3	16.63	16.52	16.62		
	RB1#5	16.58	16.45	16.53		
	RB3#0	16.70	16.78	16.52		
	RB3#3	16.70	**16.81**	16.53		
	RB6#0	15.60	15.65	15.63		
3MHz QPSK	RB1#0	17.19	17.21	17.23	8.09	34.77
	RB1#8	**17.29**	17.24	**17.29**		
	RB1#14	17.25	17.18	17.18		
	RB6#0	16.51	16.54	16.49		
	RB6#9	16.53	16.53	16.50		
	RB15#0	16.51	16.55	16.51		
3MHz 16QAM	RB1#0	16.36	16.98	16.45	7.8	34.77
	RB1#8	16.48	**17.00**	16.53		
	RB1#14	16.36	16.88	16.45		
	RB6#0	15.46	15.64	15.58		
	RB6#9	15.44	15.58	15.57		
	RB15#0	15.62	15.61	15.46		
5MHz QPSK	RB1#0	17.51	17.52	17.45	8.48	34.77
	RB1#13	**17.68**	17.65	17.62		
	RB1#24	17.51	17.44	17.47		
	RB15#0	16.70	16.59	16.71		
	RB15#10	16.60	16.62	16.62		
	RB25#0	16.61	16.65	16.66		
5MHz 16QAM	RB1#0	16.69	16.43	16.87	7.8	34.77
	RB1#13	16.89	16.60	**17.00**		
	RB1#24	16.68	16.47	16.87		
	RB15#0	15.72	15.68	15.71		
	RB15#10	15.65	15.67	15.59		
	RB25#0	15.67	15.69	15.73		
10MHz QPSK	RB1#0	17.55	17.53	17.52	8.42	34.77
	RB1#25	**17.62**	17.58	17.58		
	RB1#49	17.55	17.56	17.48		
	RB25#0	16.66	16.50	16.65		
	RB25#25	16.64	16.49	16.47		

	RB50#0	16.67	16.60	16.56		
10MHz 16QAM	RB1#0	17.30	16.77	16.66	8.15	34.77
	RB1#25	**17.35**	16.84	16.69		
	RB1#49	17.26	16.84	16.62		
	RB25#0	15.77	15.54	15.73		
	RB25#25	15.73	15.61	15.64		
	RB50#0	15.67	15.58	15.58		

Note:
ERP= Conducted Power(dBm) - L_C(dB) + G_T(dBd)
G_T(dBd)=G_T(dBi)-2.15

Band 41

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
5MHz QPSK	RB1#0	16.10	16.00	15.98	17.7	33
	RB1#13	**16.20**	16.15	16.14		
	RB1#24	16.08	16.00	15.96		
	RB15#0	15.15	15.05	15.05		
	RB15#10	15.21	15.08	15.02		
	RB25#0	15.19	15.04	15.03		
5MHz 16QAM	RB1#0	15.24	15.31	14.99	16.96	33
	RB1#13	15.37	**15.46**	15.17		
	RB1#24	15.20	15.35	15.01		
	RB15#0	14.25	14.12	14.03		
	RB15#10	14.29	14.14	13.96		
	RB25#0	14.34	14.14	14.11		
10MHz QPSK	RB1#0	16.19	16.07	16.01	17.74	33
	RB1#25	**16.24**	16.14	16.03		
	RB1#49	16.22	16.07	16.00		
	RB25#0	15.12	15.01	15.05		
	RB25#25	15.16	15.10	14.92		
	RB50#0	15.18	15.10	15.05		
10MHz 16QAM	RB1#0	15.17	15.21	15.33	16.86	33
	RB1#25	15.23	15.30	**15.36**		
	RB1#49	15.18	15.24	15.29		
	RB25#0	14.27	14.08	14.14		
	RB25#25	14.27	14.16	14.00		
	RB50#0	14.22	14.17	14.09		
15MHz QPSK	RB1#0	16.15	16.03	15.99	17.74	33
	RB1#38	**16.24**	16.15	16.12		
	RB1#74	16.13	16.05	15.98		
	RB36#0	15.02	14.90	15.00		
	RB36#39	15.04	14.97	14.88		
	RB75#0	15.06	14.99	14.92		

15MHz 16QAM	RB1#0	15.12	15.32	15.25	16.92	33
	RB1#38	15.21	**15.42**	15.40		
	RB1#74	15.07	15.31	15.24		
	RB36#0	14.04	14.05	13.98		
	RB36#39	14.03	14.07	13.91		
	RB75#0	14.08	14.06	13.91		
20MHz QPSK	RB1#0	16.11	15.88	15.85	17.8	33
	RB1#50	**16.30**	16.07	16.08		
	RB1#99	16.06	15.89	15.86		
	RB50#0	15.06	14.98	15.11		
	RB50#50	15.08	15.08	14.87		
	RB100#0	15.10	15.03	14.99		
20MHz 16QAM	RB1#0	15.36	15.03	14.86	17.08	33
	RB1#50	**15.58**	15.22	15.08		
	RB1#99	15.37	15.02	14.88		
	RB50#0	14.12	14.01	14.13		
	RB50#50	14.19	14.12	13.95		
	RB100#0	14.14	14.09	14.02		
Note: EIRP=Conducted Power(dBm) - L_C(dB) + G_T(dBi)						

Peak-to-average ratio (PAR)

Cellular Band

WCDMA B5

Test Mode	Peak-to-average Ratio (dB)			Limit (dB)
	Lowest Channel	Middle Channel	Highest Channel	
WCDMA R99	3.65	3.72	3.40	13

PCS Band

WCDMA B2

Test Mode	Peak-to-average Ratio (dB)			Limit (dB)
	Lowest Channel	Middle Channel	Highest Channel	
WCDMA R99	3.49	3.43	3.40	13

LTE Band 2 20MHz Bandwidth

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio (dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
20MHz QPSK	RB1#0	6.65	8.91	8.95	13
	RB100#0	6.67	6.82	7.32	13
20MHz 16QAM	RB1#0	7.58	6.33	6.55	13
	RB100#0	7.62	8.10	6.64	13

LTE Band 5 10MHz Bandwidth

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
10MHz QPSK	RB1#0	3.20	3.99	3.29	13
	RB50#0	4.19	4.94	4.44	13
10MHz 16QAM	RB1#0	4.42	4.57	4.77	13
	RB50#0	4.93	4.50	4.01	13

LTE Band 7 20MHz Bandwidth

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
20MHz QPSK	RB1#0	6.99	7.49	7.59	13
	RB100#0	7.48	7.77	6.67	13
20MHz 16QAM	RB1#0	7.93	7.96	7.58	13
	RB100#0	7.65	7.63	8.65	13

LTE Band 12 10MHz Bandwidth

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
10MHz QPSK	RB1#0	7.15	8.03	7.65	13
	RB50#0	6.10	8.71	7.05	13
10MHz 16QAM	RB1#0	8.29	9.81	6.79	13
	RB50#0	6.95	8.17	8.90	13

LTE Band 41 20MHz Bandwidth

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel	Middle Channel	Highest Channel	
20MHz QPSK	RB1#0	7.77	8.45	8.43	13
	RB100#0	7.79	6.60	7.84	13
20MHz 16QAM	RB1#0	7.23	6.64	9.10	13
	RB100#0	8.72	9.75	7.38	13

FCC §2.1049, §22.917, §22.905 & §24.238&§27.53 - OCCUPIED BANDWIDTH

Applicable Standard

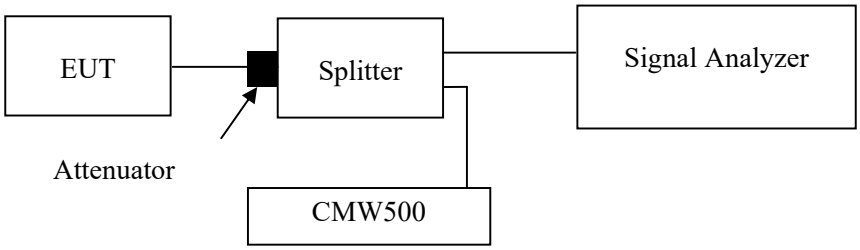
FCC 47 §2.1049, §22.917, §22.905, §24.238 and §27.53.

Test Procedure

ANSI C63.26-2015 Section 5.4.4

The RF output of the transmitter was connected to the simulator and the spectrum analyzer through sufficient attenuation.

The resolution bandwidth of the spectrum analyzer was set at 1% to 5% of the anticipated emission bandwidth and the 26 dB & 99% bandwidth was recorded.



Test Data

Environmental Conditions

Temperature:	23~24.5 ℃
Relative Humidity:	48~56 %
ATM Pressure:	101.0kPa

The testing was performed by Bruce Lin from 2024-02-28 to 2024-03-13

EUT operation mode: Transmitting

Test Result: Compliant

Please refer to the following tables and plots.

Cellular Band (Part 22H)

GSM 850

Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
GSM	0.245	0.244	0.249	0.317	0.319	0.322
Note: The test plots please refer to the Plots of Occupied Bandwidth						

WCDMA B5

Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
WCDMA R99	4.15	4.16	4.13	4.70	4.73	4.71
Note: The test plots please refer to the Plots of Occupied Bandwidth						

PCS Band (Part 24E)

PCS 1900

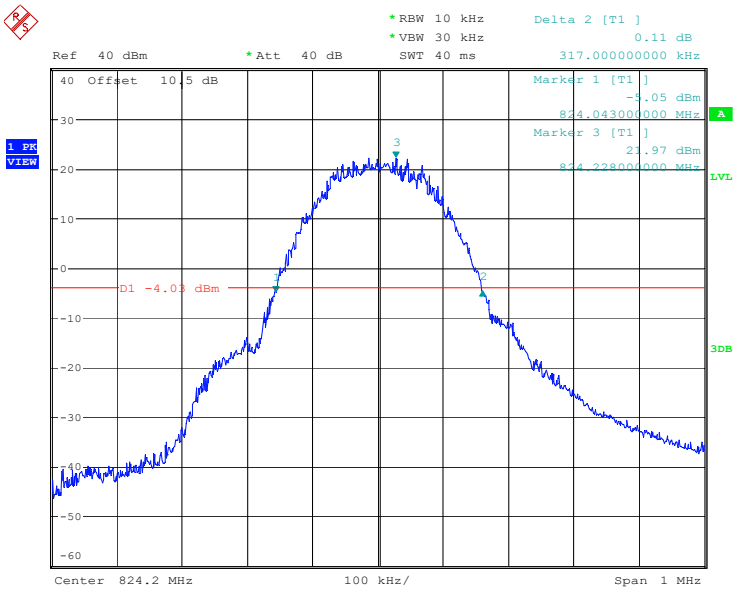
Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
GSM	0.248	0.244	0.243	0.318	0.314	0.315
Note: The test plots please refer to the Plots of Occupied Bandwidth						

WCDMA B2

Operation Mode	99% Occupied Bandwidth (MHz)			26 dB Occupied Bandwidth (MHz)		
	Low Channel	Middle channel	High Channel	Low Channel	Middle Channel	High Channel
WCDMA R99	4.15	4.15	4.14	4.71	4.74	4.73
Note: The test plots please refer to the Plots of Occupied Bandwidth						

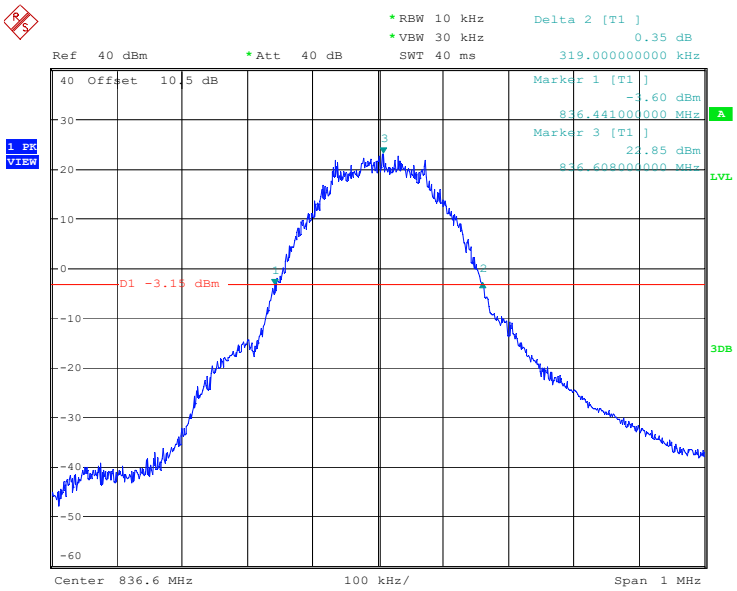
Cellular Band
26dB Bandwidth

GSM(GMSK) Mode, Low channel



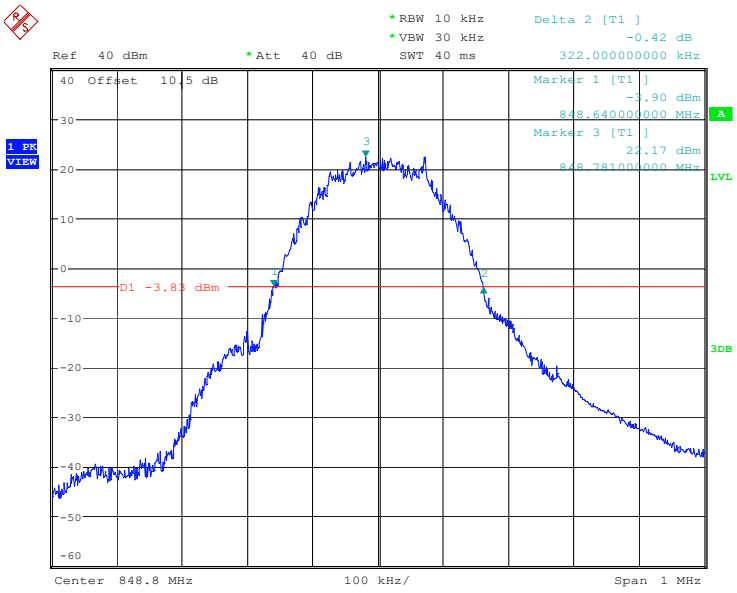
ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 4.MAR.2024 23:05:30

GSM(GMSK) Mode, Middle channel



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 4.MAR.2024 23:11:09

GSM(GMSK) Mode, High channel

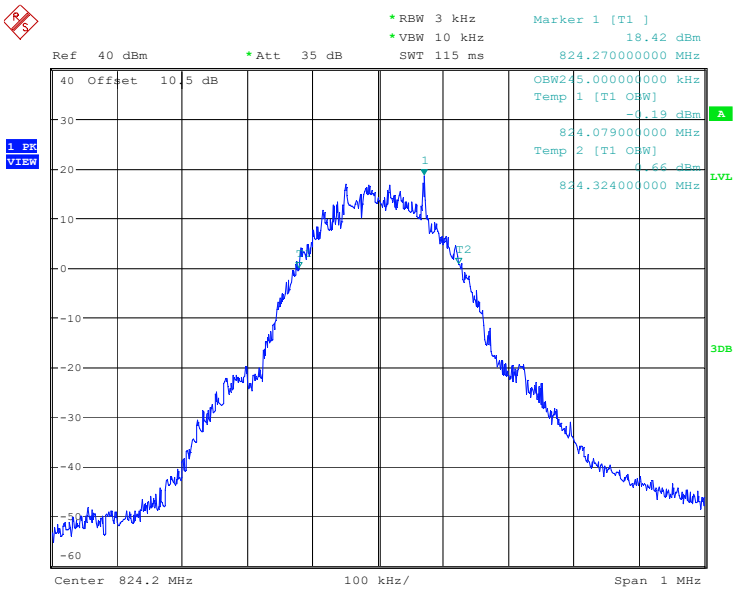


ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 4.MAR.2024 23:33:00

99% Occupied Bandwidth

GSM(GMSK) Mode, Low channel



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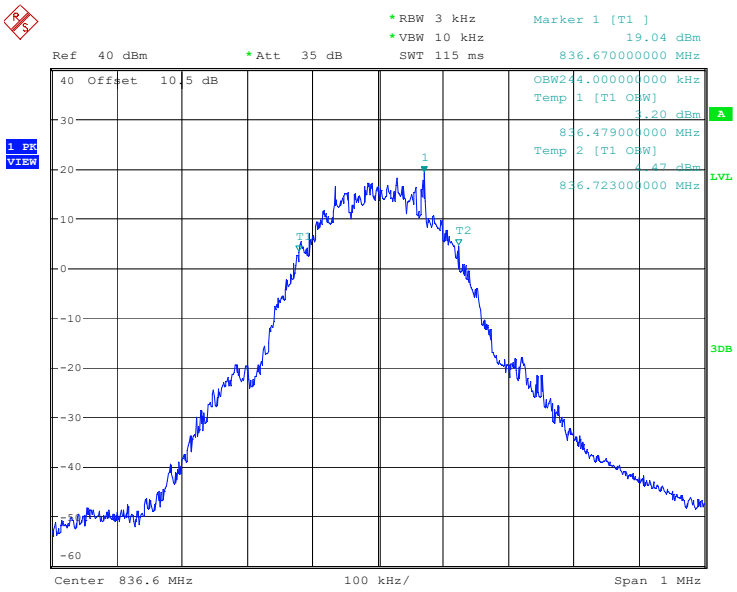
Date: 4.MAR.2024 23:06:31

GSM(GMSK) Mode, Middle channel



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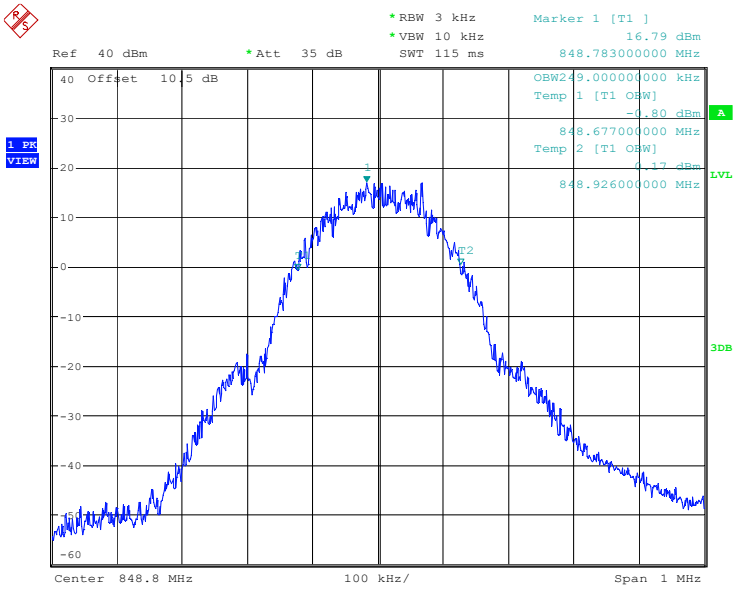
Date: 4.MAR.2024 23:15:13

GSM(GMSK) Mode, High channel

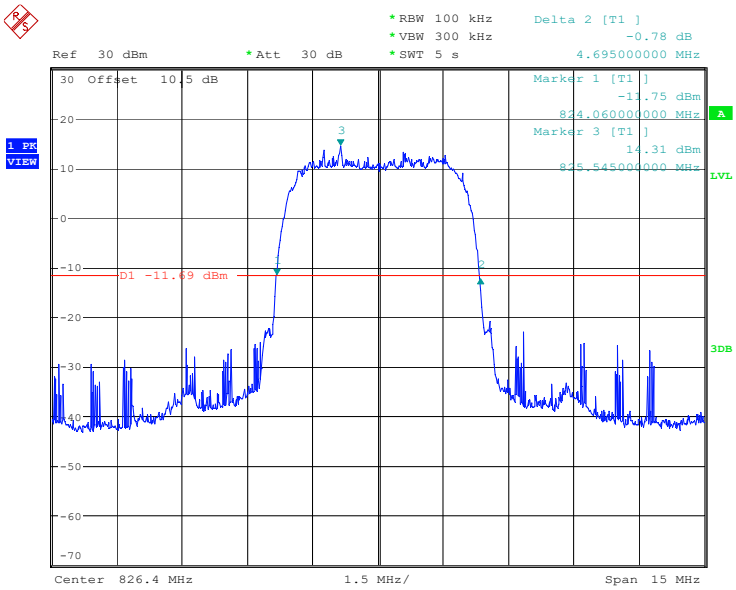


ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 4.MAR.2024 23:33:29

26 dB Bandwidth

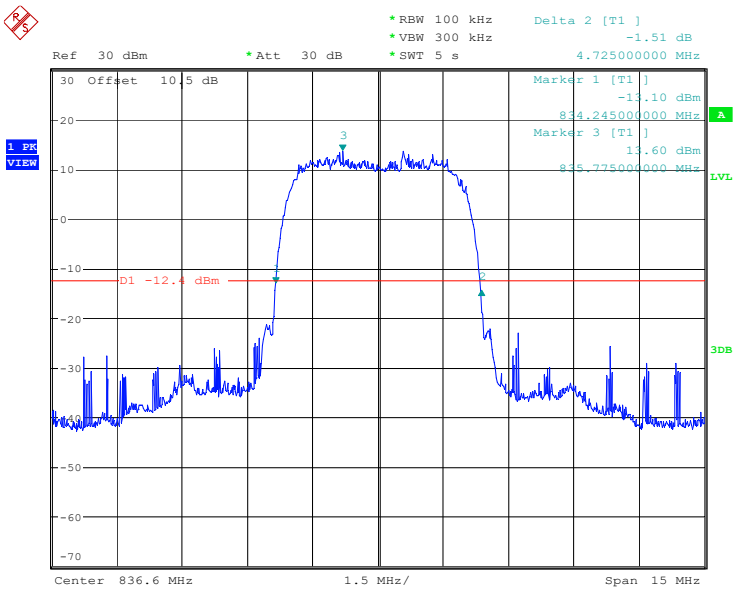
RMC (BPSK) Mode, Low channel



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 2.MAR.2024 00:44:24

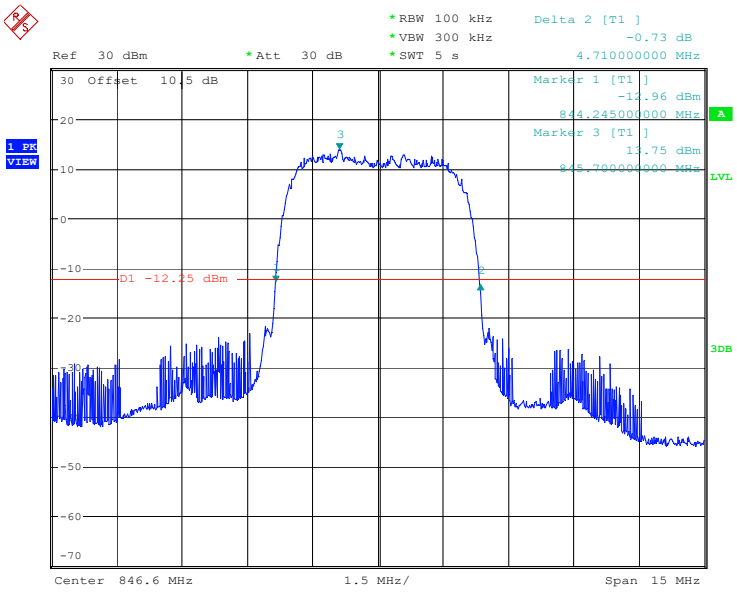
RMC (BPSK) Mode, Middle channel



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 2.MAR.2024 00:41:55

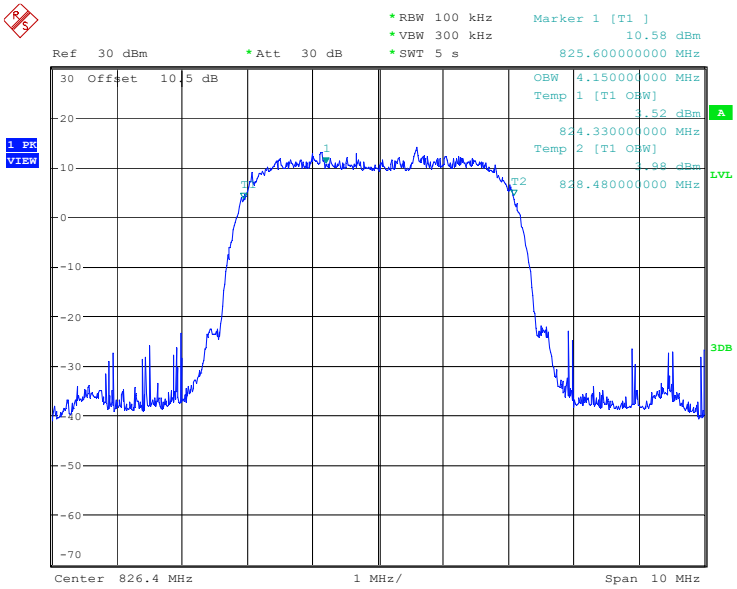
RMC (BPSK) Mode, High channel



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 2.MAR.2024 00:39:15

99% Occupied Bandwidth

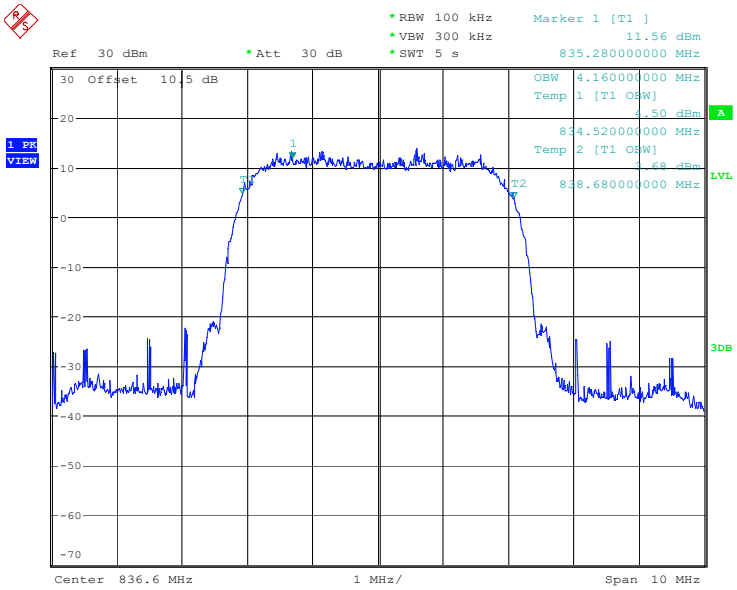
RMC (BPSK) Mode, Low channel



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 2.MAR.2024 00:45:05

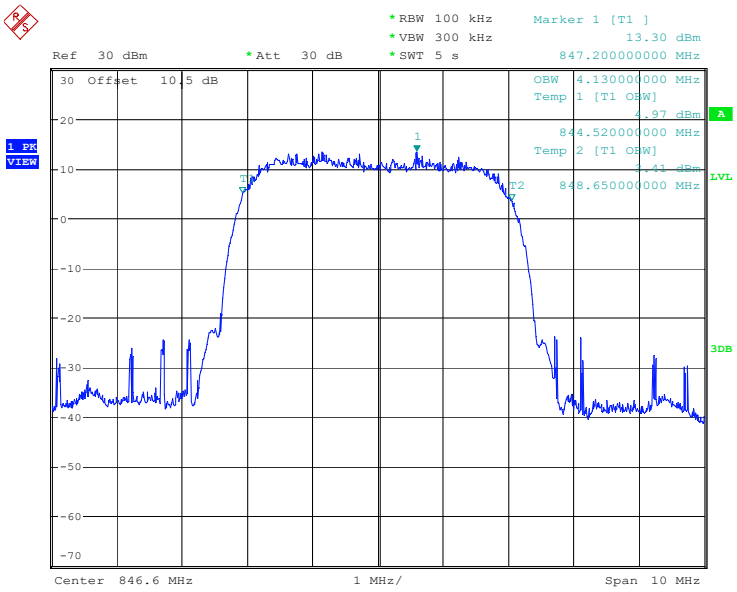
RMC (BPSK) Mode, Middle channel



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 2.MAR.2024 00:42:32

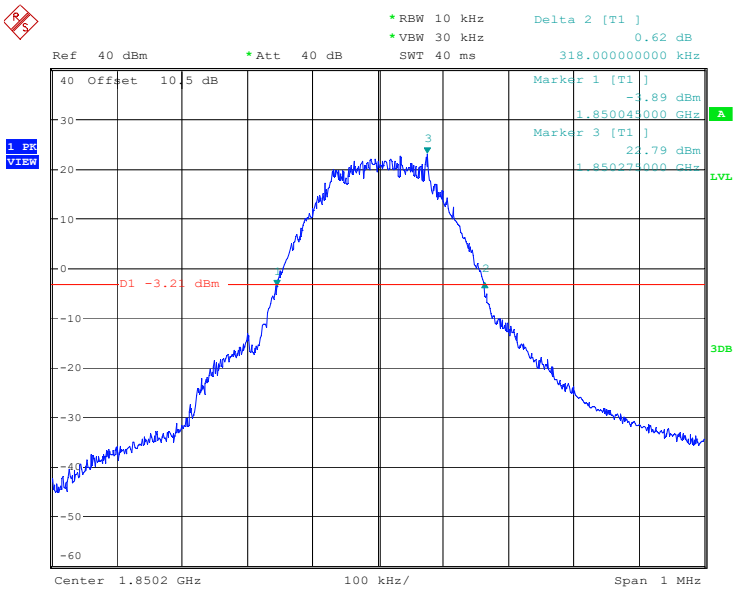
RMC (BPSK) Mode, High channel



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 2.MAR.2024 00:40:07

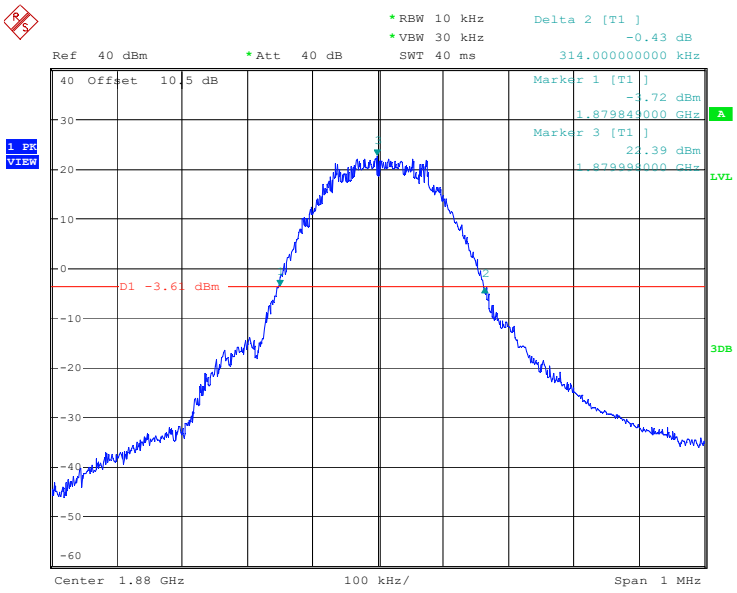
PCS Band
26dB Bandwidth

GSM(GMSK) Mode, Low channel



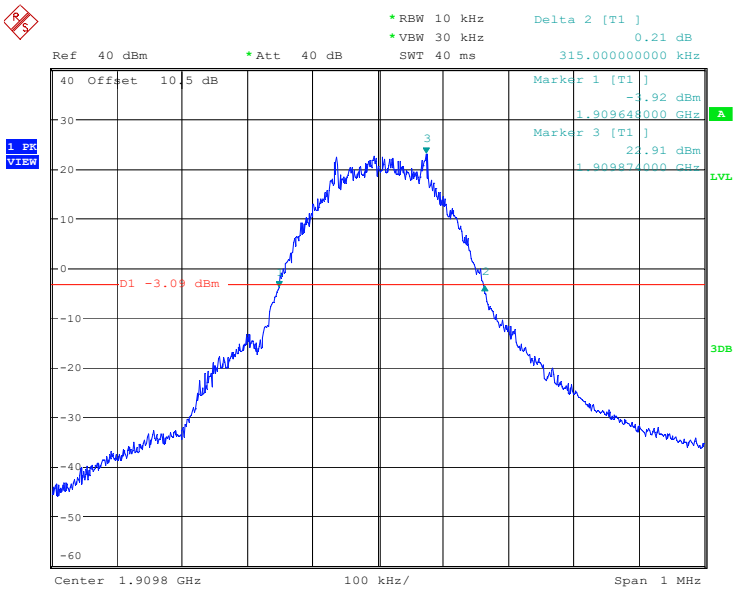
ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 4.MAR.2024 22:44:46

GSM(GMSK) Mode, Middle channel



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 4.MAR.2024 22:50:57

GSM(GMSK) Mode, High channel

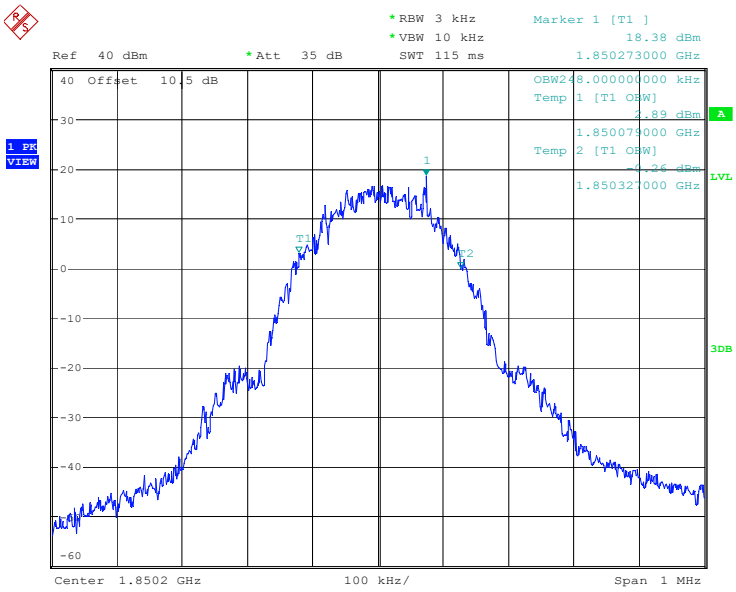


ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 4.MAR.2024 22:55:37

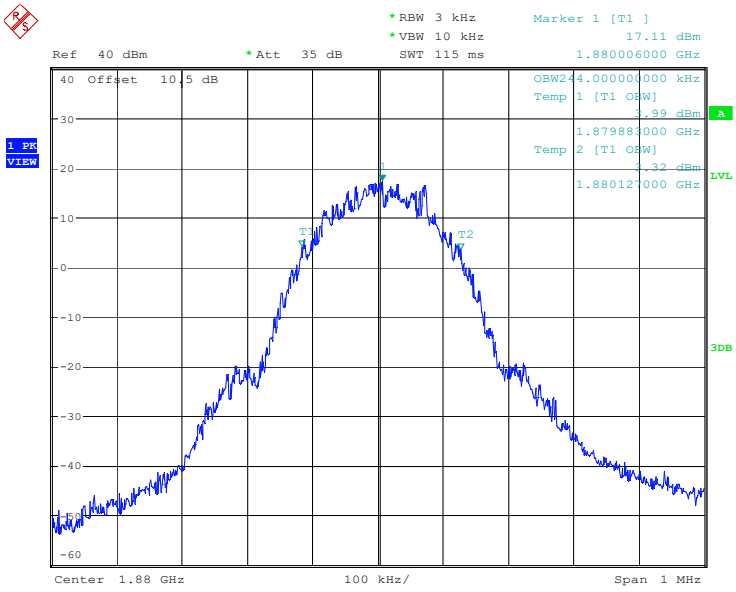
99% Occupied Bandwidth

GSM(GMSK) Mode, Low channel



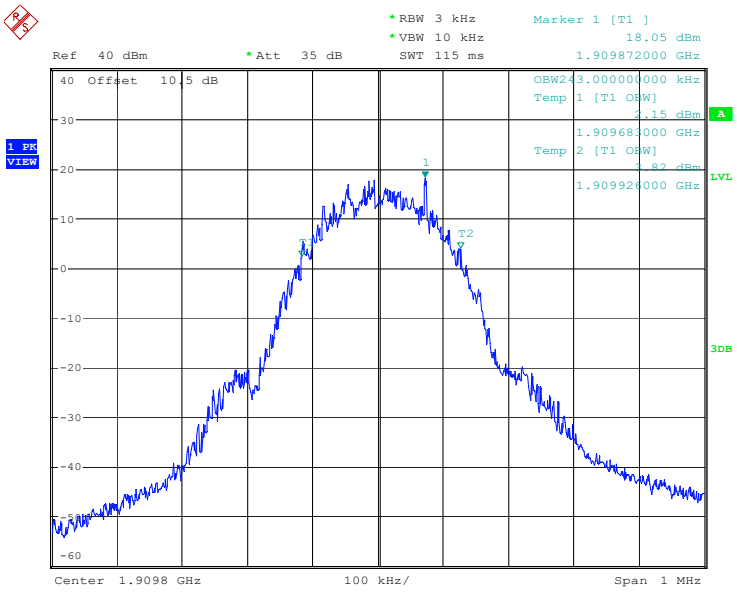
ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 4.MAR.2024 22:45:25

GSM(GMSK) Mode, Middle channel



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 4.MAR.2024 22:51:31

GSM(GMSK) Mode, High channel

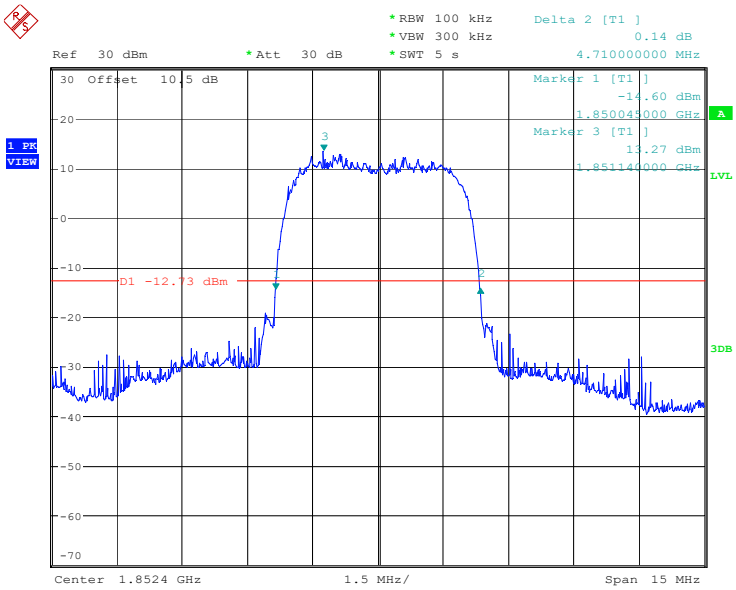


ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 4.MAR.2024 22:56:10

26 dB Bandwidth

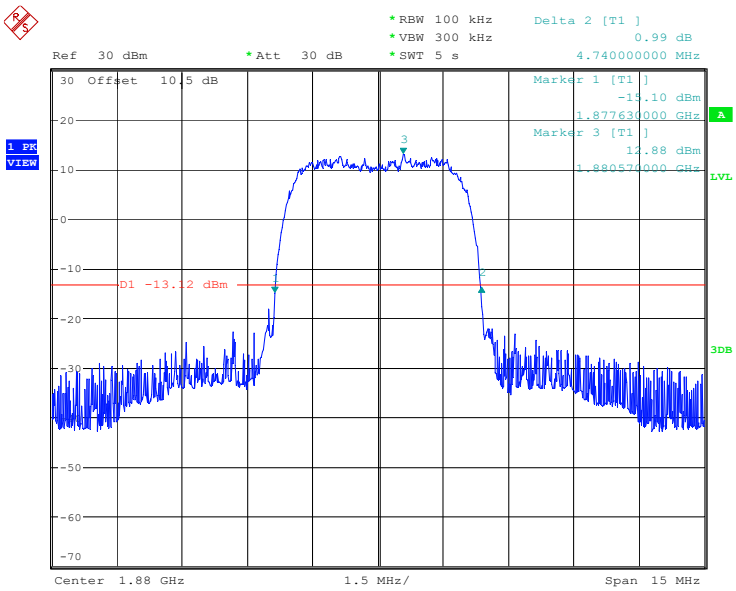
RMC (BPSK) Mode, Low channel



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 1.MAR.2024 22:36:24

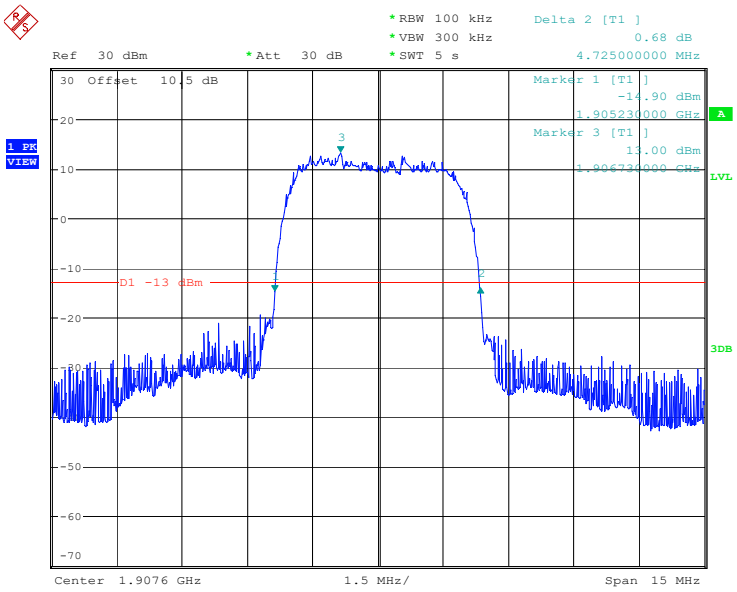
RMC (BPSK) Mode, Middle channel



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 1.MAR.2024 22:45:42

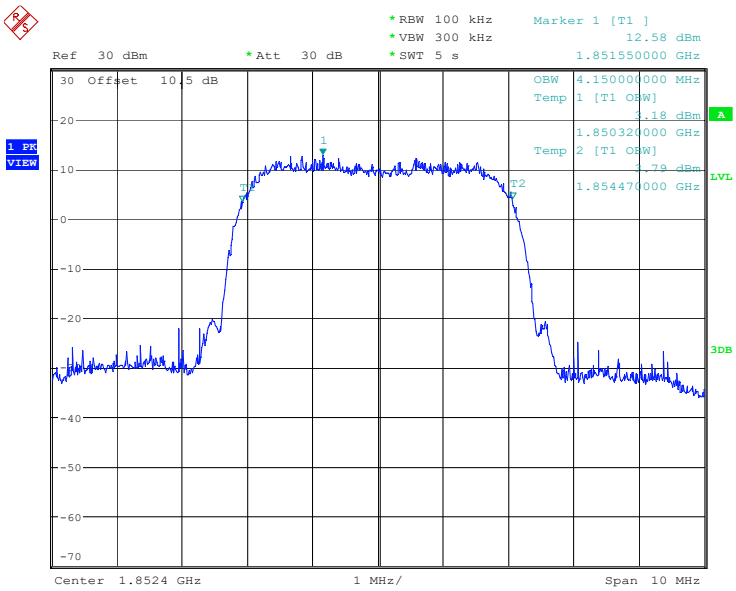
RMC (BPSK) Mode, High channel



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 1.MAR.2024 22:48:57

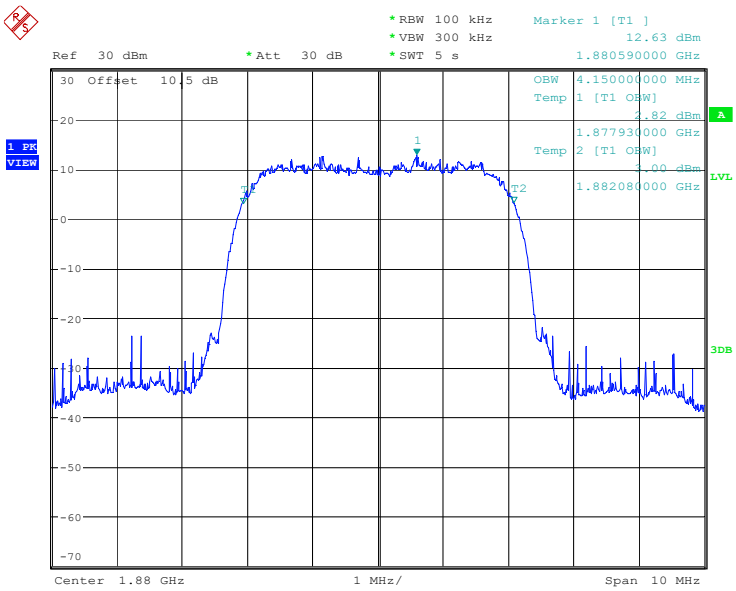
99% Occupied Bandwidth

RMC (BPSK) Mode, Low channel



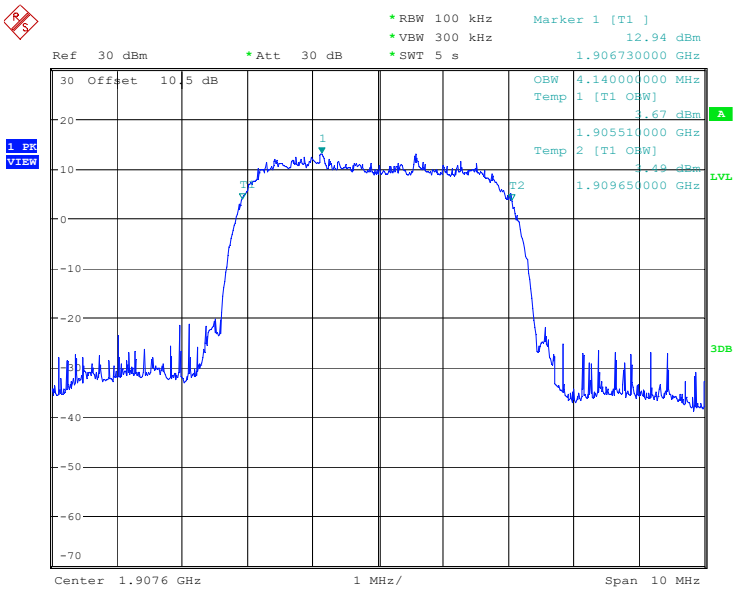
ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 1.MAR.2024 22:36:45

RMC (BPSK) Mode, Middle channel



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 1.MAR.2024 22:46:33

RMC (BPSK) Mode, High channel



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 1.MAR.2024 22:49:33

LTE Band

Band 2

Operation Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
	Middle channel	Middle Channel
1.4MHz QPSK	1.098	1.296
1.4MHz 16QAM	1.110	1.302
3MHz QPSK	2.687	2.904
3MHz 16QAM	2.687	2.964
5MHz QPSK	4.520	4.940
5MHz 16QAM	4.540	4.940
10MHz QPSK	8.920	9.640
10MHz 16QAM	8.920	9.560
15MHz QPSK	13.500	14.760
15MHz 16QAM	13.440	14.700
20MHz QPSK	17.840	19.280
20MHz 16QAM	17.920	19.360

Band 5

Operation Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
	Middle channel	Middle Channel
1.4MHz QPSK	1.098	1.284
1.4MHz 16QAM	1.104	1.308
3MHz QPSK	2.676	2.928
3MHz 16QAM	2.676	2.940
5MHz QPSK	4.520	4.900
5MHz 16QAM	4.520	4.920
10MHz QPSK	8.960	9.640
10MHz 16QAM	8.960	9.640

Band 7

Operation Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
	Middle channel	Middle Channel
5MHz QPSK	4.500	4.940
5MHz 16QAM	4.540	4.940
10MHz QPSK	8.960	9.640
10MHz 16QAM	8.960	9.680
15MHz QPSK	13.560	14.880
15MHz 16QAM	13.500	14.700
20MHz QPSK	18.000	19.280
20MHz 16QAM	18.000	19.440

Band 12

Operation Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
	Middle channel	Middle Channel
1.4MHz QPSK	1.110	1.308
1.4MHz 16QAM	1.098	1.284
3MHz QPSK	2.676	2.916
3MHz 16QAM	2.687	2.952
5MHz QPSK	4.520	4.940
5MHz 16QAM	4.500	4.920
10MHz QPSK	8.960	9.640
10MHz 16QAM	8.920	9.600

Band 41

Operation Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
	Middle channel	Middle Channel
5MHz QPSK	4.520	5.000
5MHz 16QAM	4.520	4.960
10MHz QPSK	9.000	9.600
10MHz 16QAM	9.000	9.880
15MHz QPSK	13.500	14.820
15MHz 16QAM	13.500	14.880
20MHz QPSK	18.000	19.360
20MHz 16QAM	18.000	19.360

The test plots of LTE band please refer to the Appendix A.

FCC §2.1051, §22.917(a) & §24.238(a) & §27.53 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standard

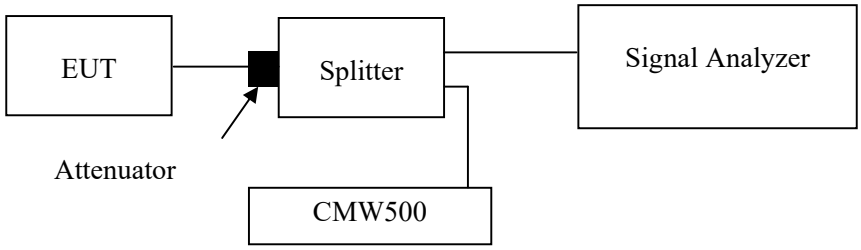
FCC §2.1051, §22.917(a) & §24.238(a) & §27.53.

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1051.

Test Procedure

ANSI C63.26-2015 Section 5.7

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz. Sufficient scans were taken to show any out of band emissions up to 10^{th} harmonic.



Note: the worst path loss (cable loss and splitter inset loss) among the test frequency range was added into plots.

Test Data

Environmental Conditions

Temperature:	23~24.5 ℃
Relative Humidity:	48~56 %
ATM Pressure:	101.0kPa

The testing was performed by Bruce Lin from 2024-02-28 to 2024-03-14

EUT operation mode: Transmitting

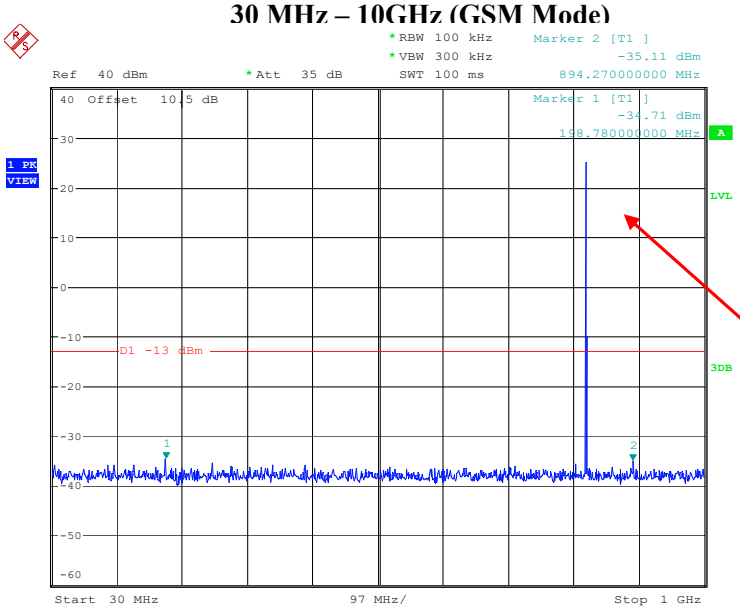
Test result: Compliant

Please refer to the following plots.

Cellular Band

Low Channel:

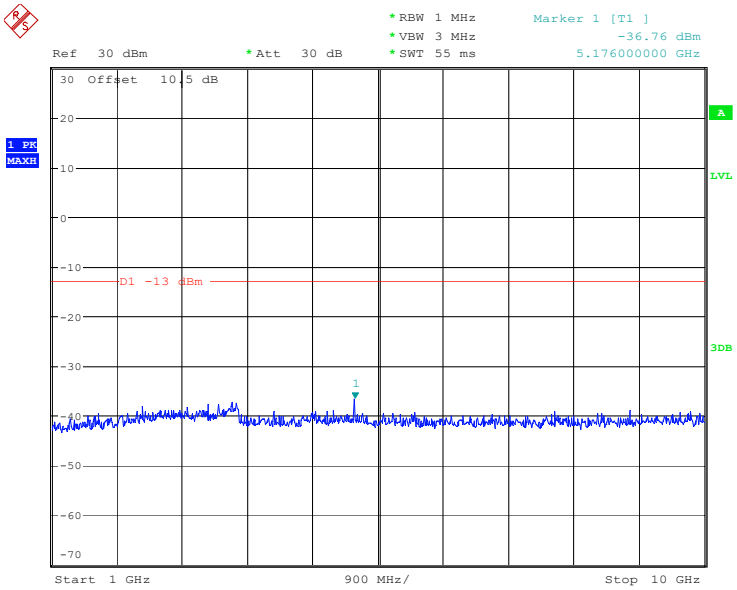
30 MHz – 10GHz (GSM Mode)



Fundamental test

ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 4.MAR.2024 23:07:22

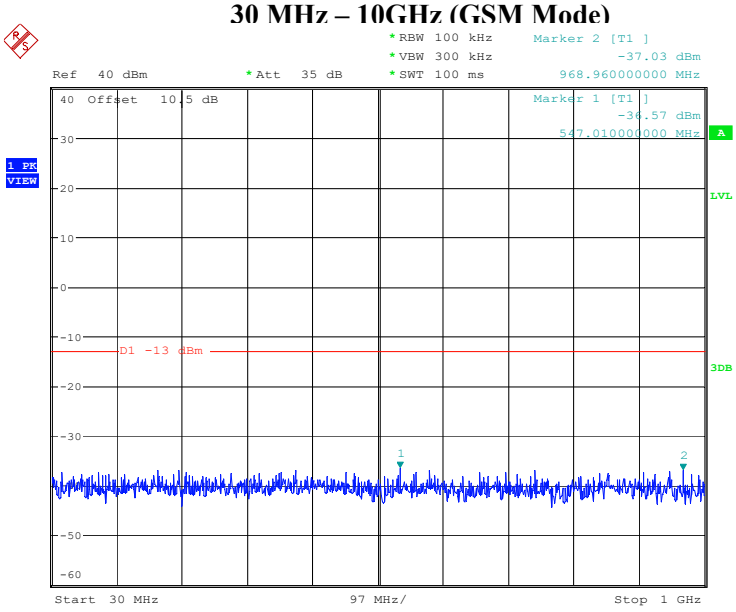


ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 4.MAR.2024 23:07:33

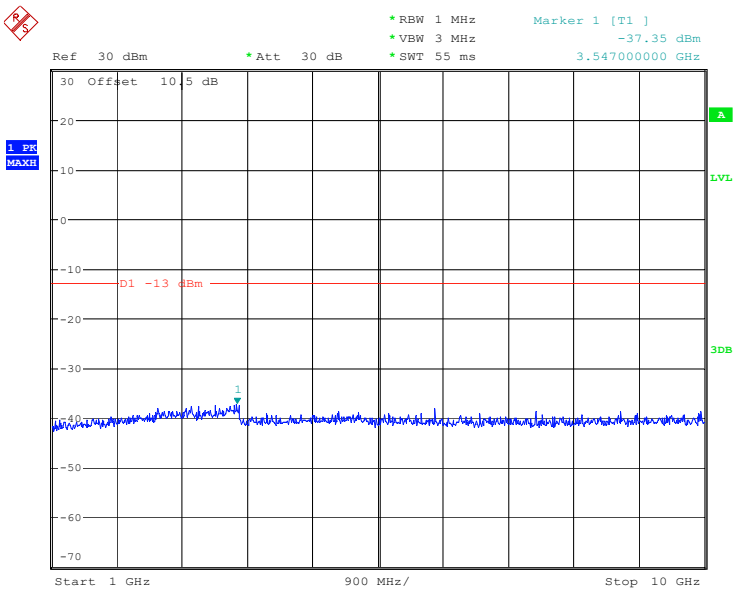
Middle Channel:

30 MHz – 10GHz (GSM Mode)



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 4.MAR.2024 23:15:23

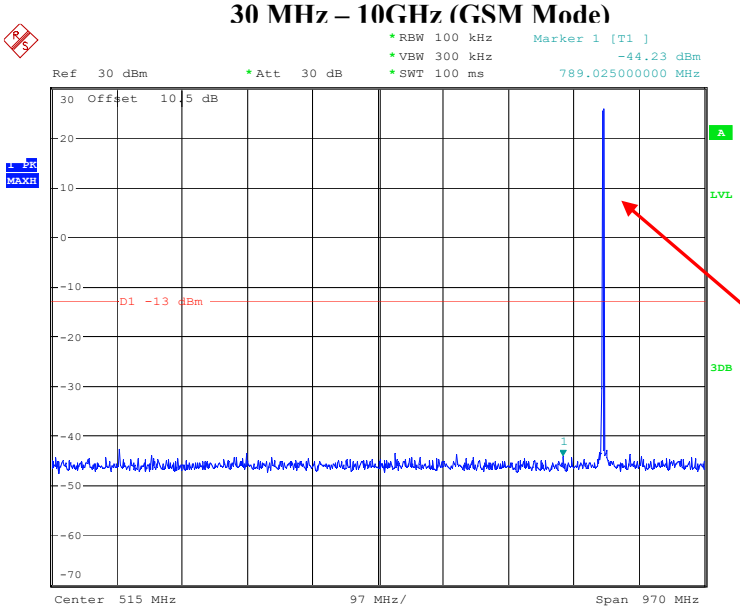


ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 4.MAR.2024 23:15:44

High Channel:

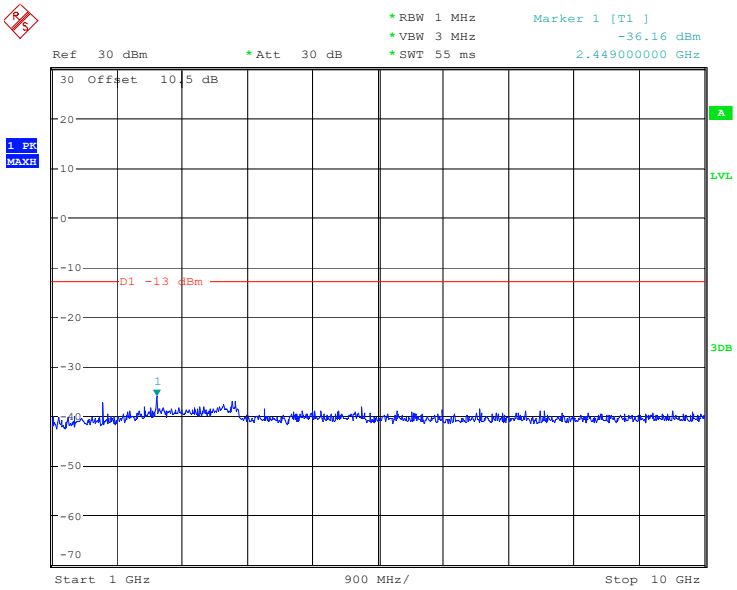
30 MHz – 10GHz (GSM Mode)



Fundamental test

ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 4.MAR.2024 23:40:08

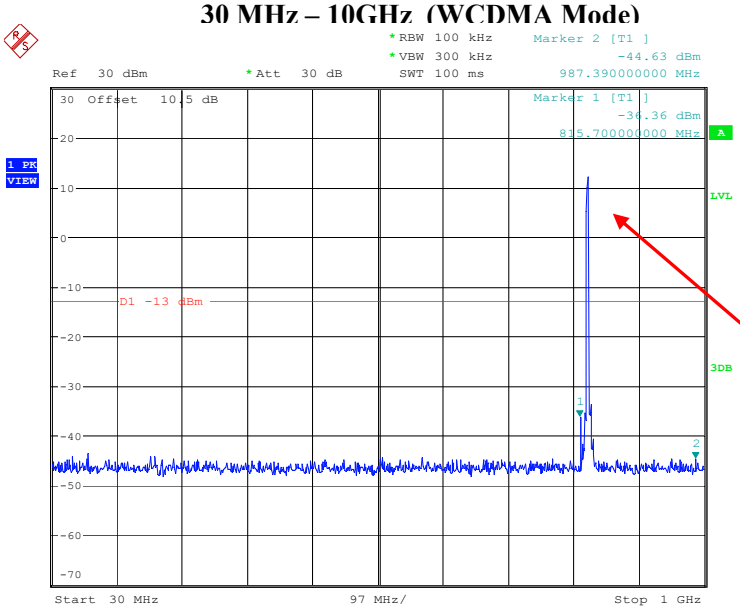


ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 4.MAR.2024 23:40:39

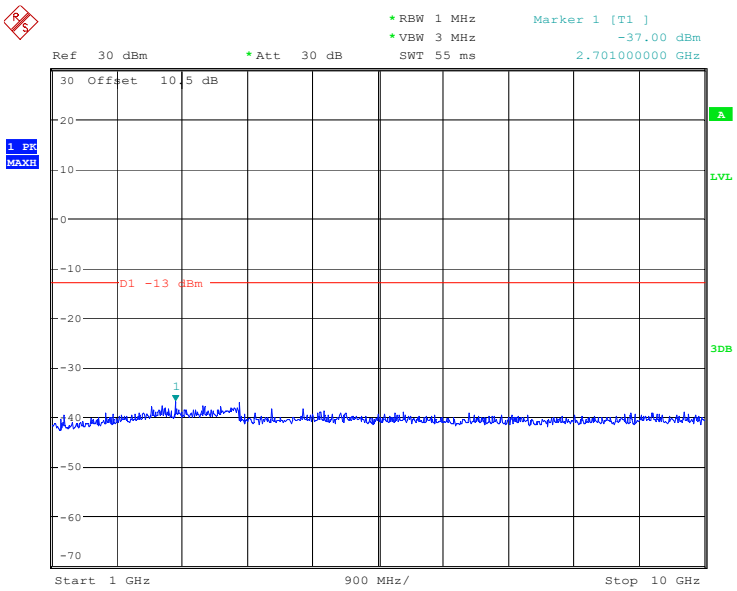
Low Channel:

30 MHz – 10GHz (WCDMA Mode)



Fundamental test

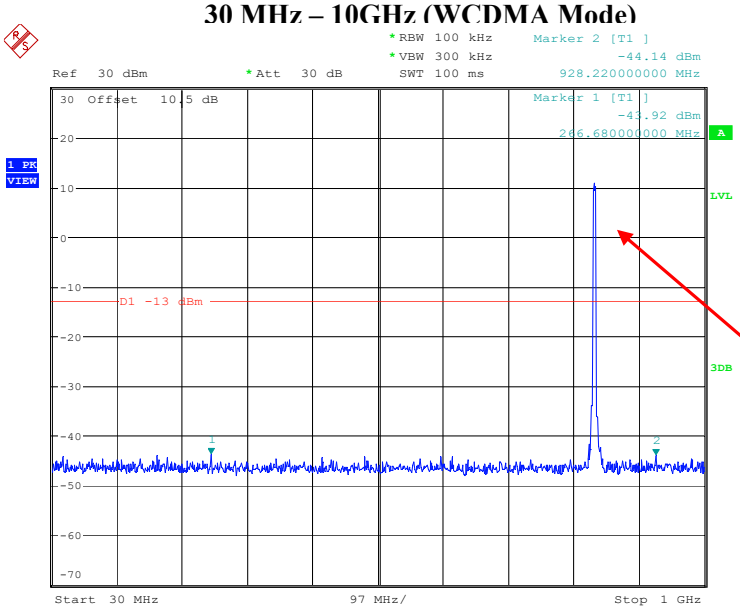
ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 2.MAR.2024 00:45:48



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 2.MAR.2024 00:46:14

Middle Channel:

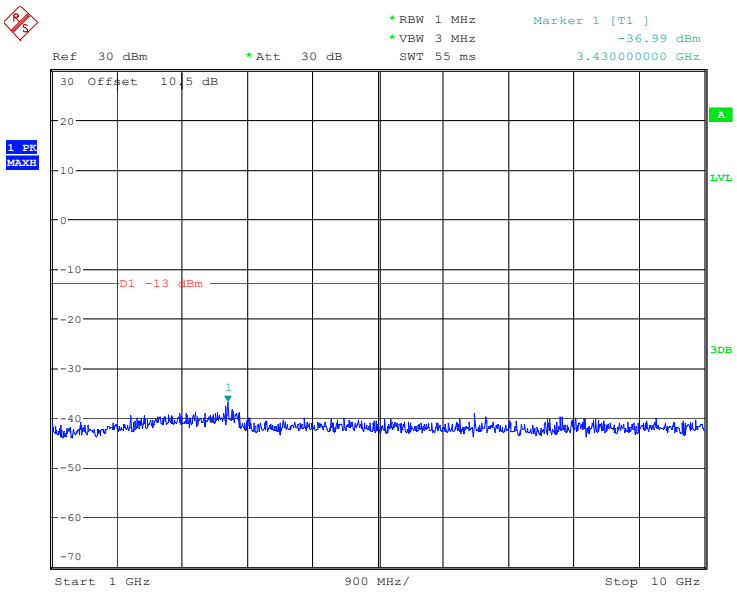
30 MHz – 10GHz (WCDMA Mode)



Fundamental test

ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 2.MAR.2024 00:42:49

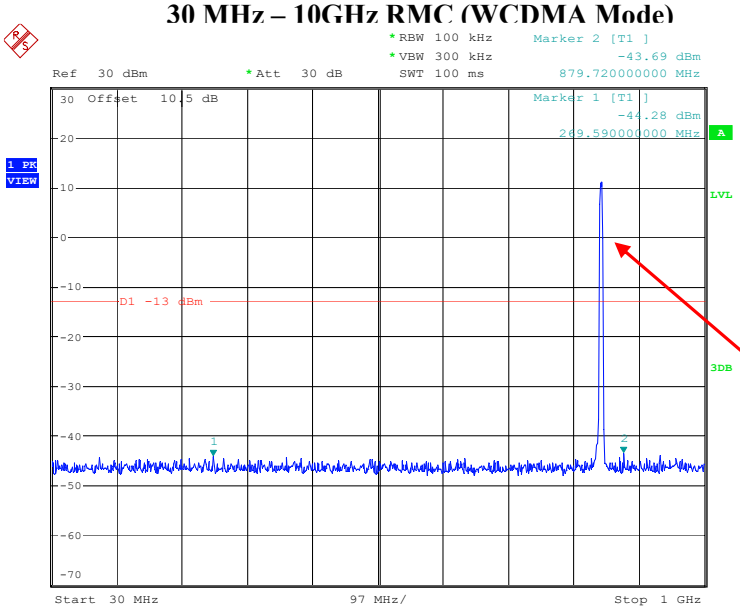


ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 2.MAR.2024 00:42:57

High Channel:

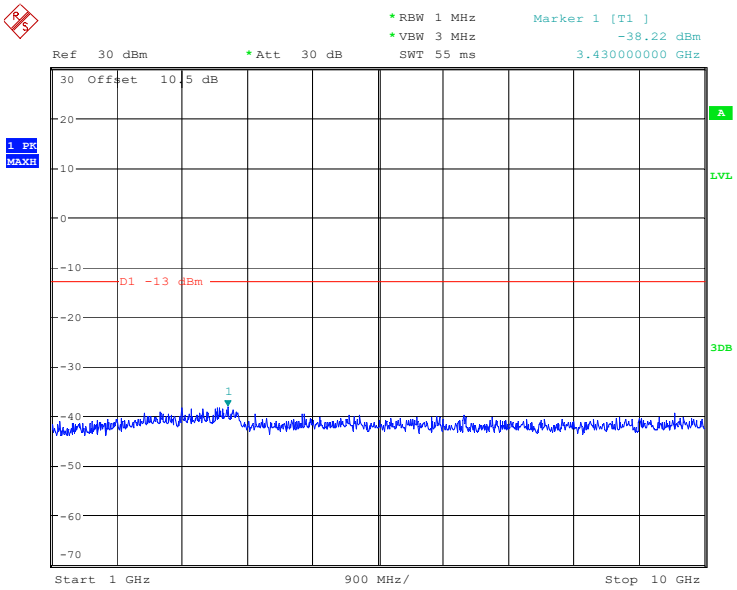
30 MHz – 10GHz RMC (WCDMA Mode)



Fundamental test

ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 2.MAR.2024 00:40:36



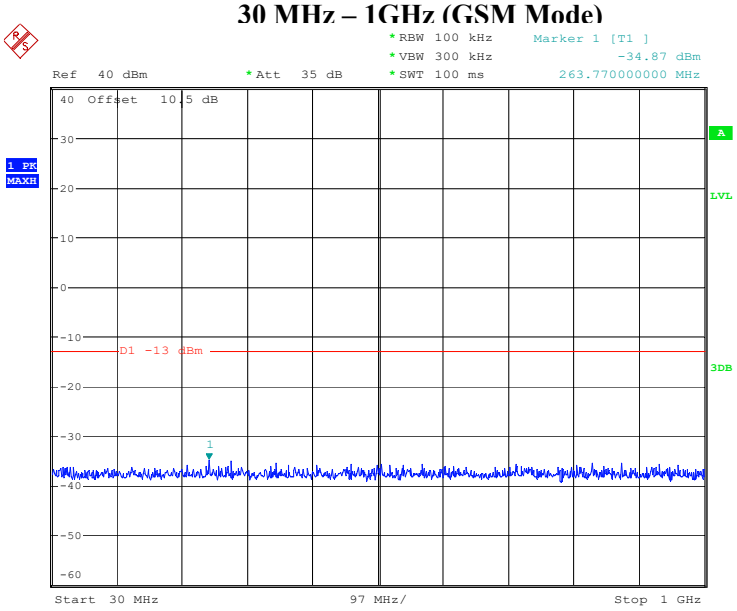
ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 2.MAR.2024 00:40:44

PCS Band

Low Channel:

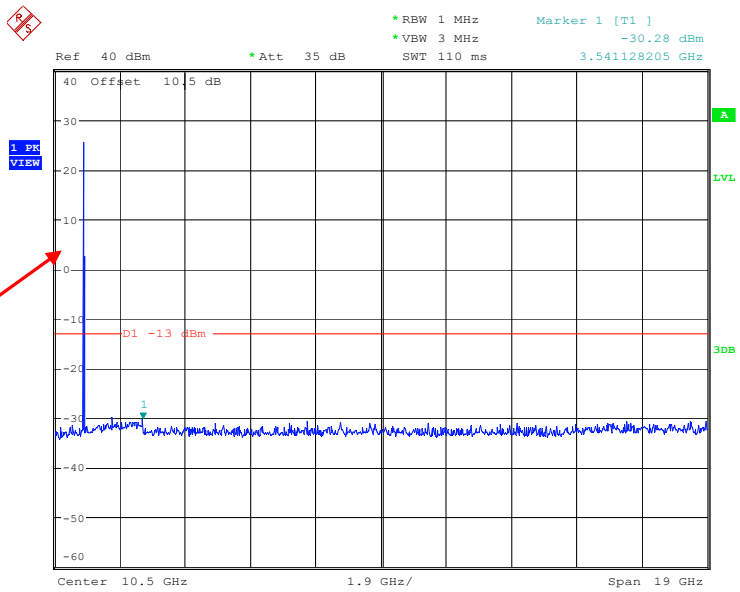
30 MHz – 1GHz (GSM Mode)



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 4.MAR.2024 22:47:00

1 GHz – 20GHz (GSM Mode)



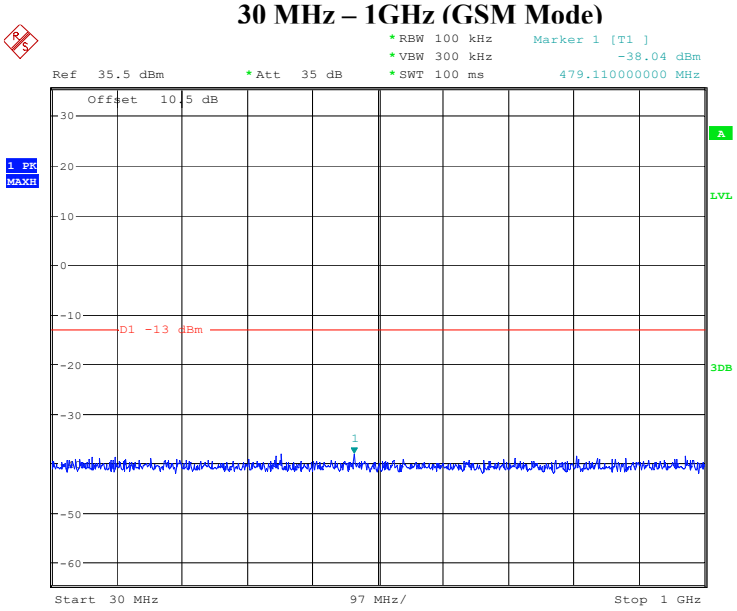
Fundamental test

ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 4.MAR.2024 22:48:44

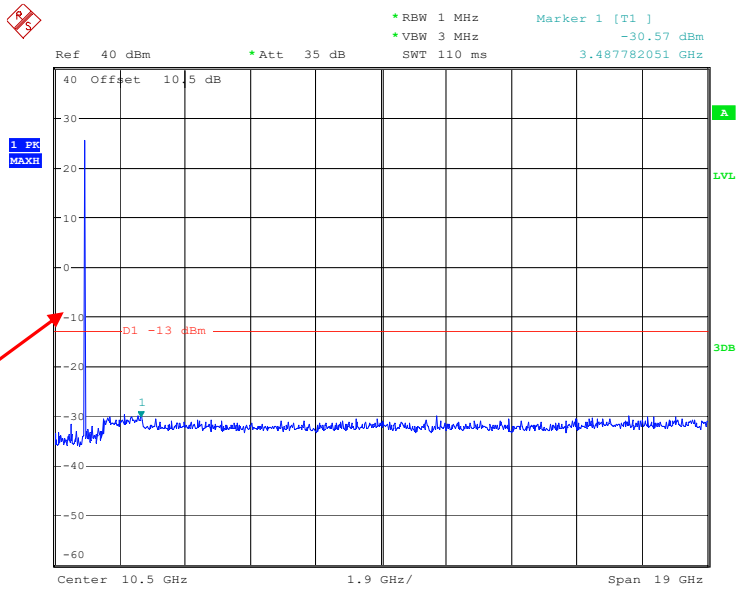
Middle Channel:

30 MHz – 1GHz (GSM Mode)



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 4.MAR.2024 22:52:01

1 GHz – 20GHz (GSM Mode)

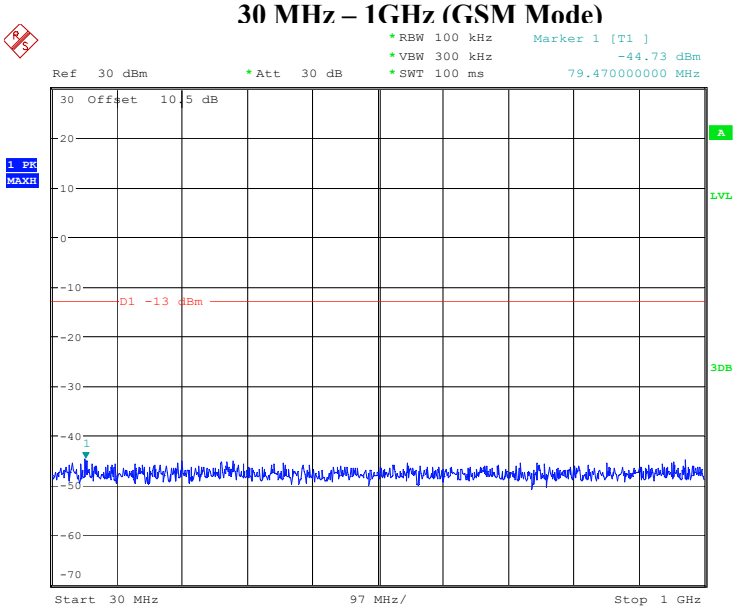


Fundamental test

ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 4.MAR.2024 22:53:34

High Channel:

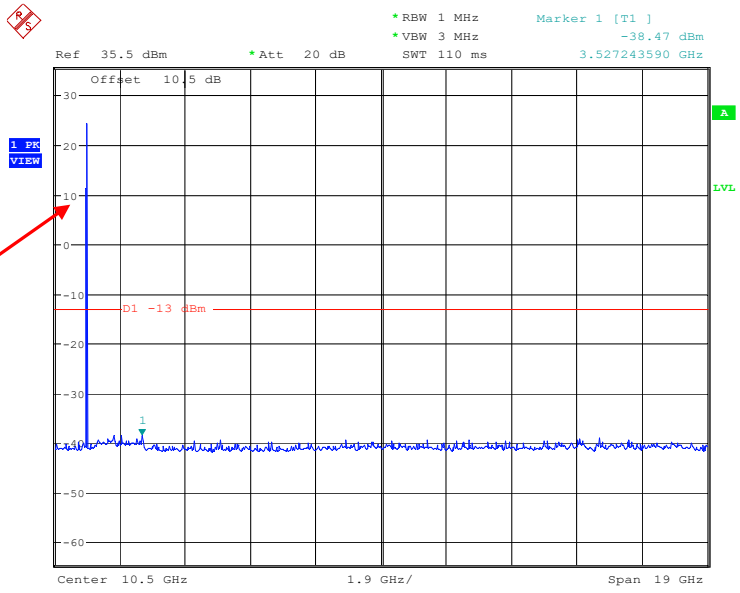
30 MHz – 1GHz (GSM Mode)



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 4.MAR.2024 22:57:02

1 GHz – 20GHz (GSM Mode)



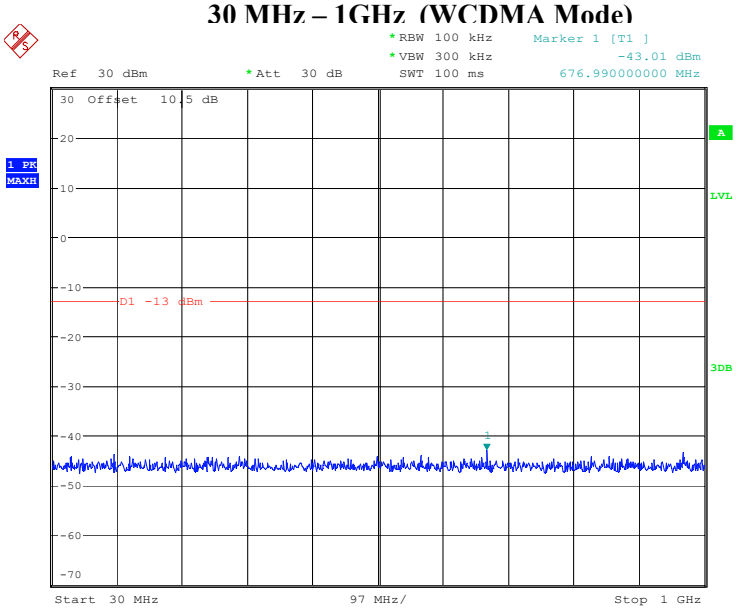
Fundamental test

ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 8.MAR.2024 00:35:15

Low Channel:

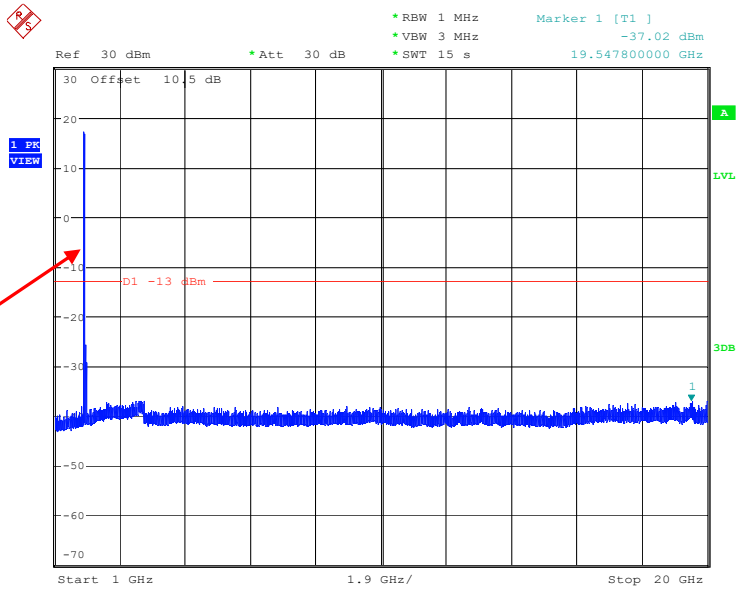
30 MHz – 1GHz (WCDMA Mode)



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 1.MAR.2024 22:37:31

1 GHz – 20GHz (WCDMA Mode)



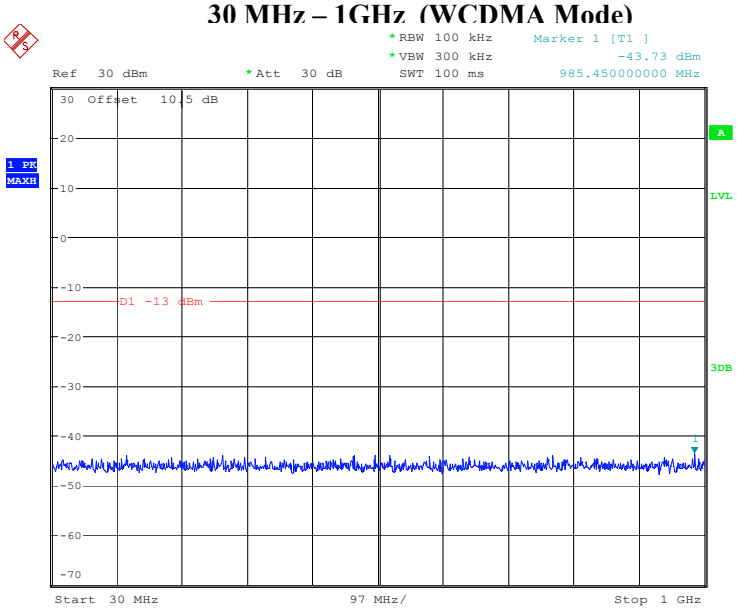
Fundamental test

ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 1.MAR.2024 22:38:52

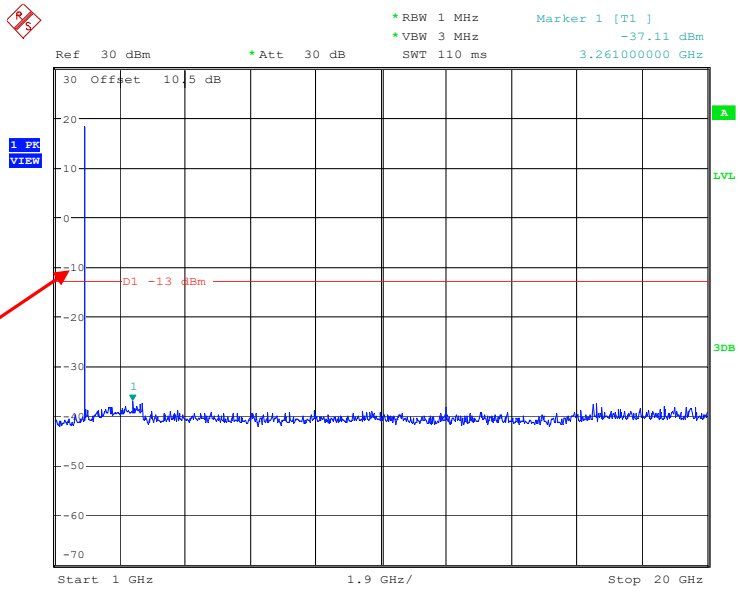
Middle Channel:

30 MHz – 1GHz (WCDMA Mode)



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 1.MAR.2024 22:46:54

1 GHz – 20GHz (WCDMA Mode)

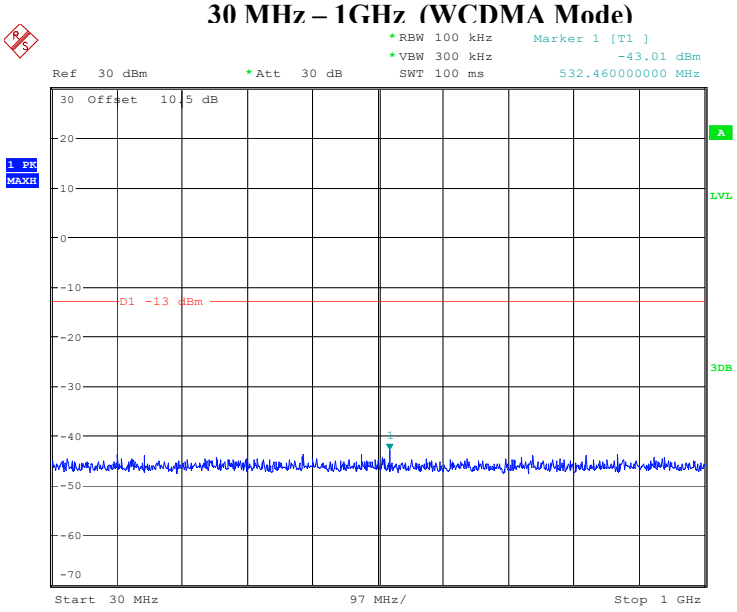


Fundamental test

ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 1.MAR.2024 22:47:13

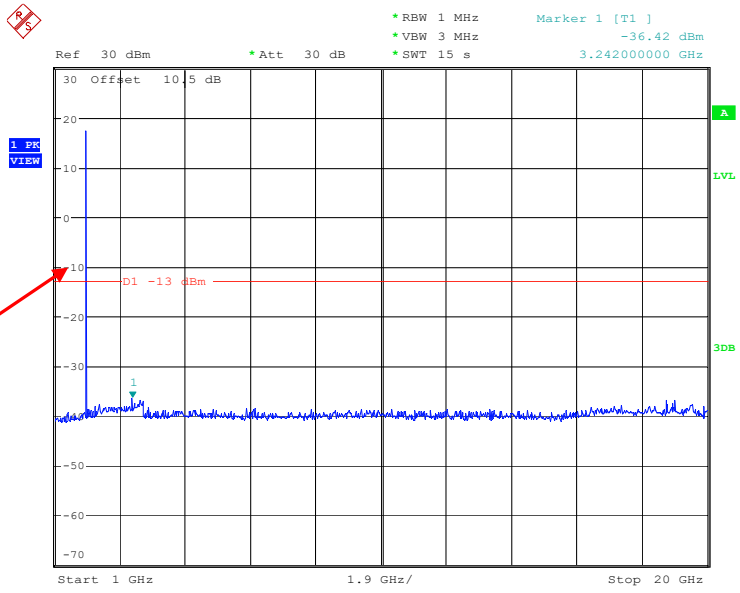
High Channel:

30 MHz – 1GHz (WCDMA Mode)



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 1.MAR.2024 22:50:07

1 GHz – 20GHz (WCDMA Mode)



Fundamental test

ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 1.MAR.2024 22:50:47

The test plots of LTE band please refer to the Appendix B.

FCC § 2.1053; § 22.917 (a);§ 24.238 (a); §27.53 - SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, §22.917(a)& § 24.238(a) &§ 27.53.

Test Procedure

ANSI/TIA-603-E-2016 Section 2.2.12
KDB 671168 D01 v03r01 Section 6.2

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the receiving antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Test Data

Environmental Conditions

Temperature:	22~23.5 ℃
Relative Humidity:	54~55 %
ATM Pressure:	101 kPa

The testing was performed by Warren Huang on 2024-02-01 for below 1GHz and Tyler Wu on 2024-03-07 for above 1GHz.

EUT operation mode: Transmitting (Pre-scan in the X, Y and Z axes of orientation, the worst case Y-axis of orientation was recorded)

Frequency (MHz)	Receiver Reading (dBμV)	Turn Table	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
		Angle Degree	Height (m)	Polar (H / V)	Substituted Level (dBm)	Cable loss (dB)	Antenna Gain (dB)			
GSM 850 (30MHz-10GHz)										
Low Channel										
338.1	42.14	71	2.5	H	-64.8	0.98	0.0	-65.78	-13	52.78
92.5	41.83	271	2.2	V	-66.6	0.75	0.0	-67.35	-13	54.35
1648.40	71.89	15	1.2	H	-35.8	0.90	7.90	-28.80	-13	15.80
1648.40	71.78	144	2.0	V	-36.4	0.90	7.90	-29.40	-13	16.40
2472.60	64.75	321	2.0	H	-42.6	1.10	8.70	-35.00	-13	22.00
2472.60	65.31	22	1.3	V	-41.8	1.10	8.70	-34.20	-13	21.20
3296.80	59.45	291	2.2	H	-46.5	1.30	8.70	-39.10	-13	26.10
3296.80	58.03	147	1.6	V	-47.7	1.30	8.70	-40.30	-13	27.30
Middle Channel										
338.1	42.58	327	1.7	H	-64.3	0.98	0.0	-65.28	-13	52.28
92.5	42.46	270	1.7	V	-65.9	0.75	0.0	-66.65	-13	53.65
1673.20	70.91	97	2.1	H	-36.7	0.90	8.00	-29.60	-13	16.60
1673.20	69.13	212	1.5	V	-39.0	0.90	8.00	-31.90	-13	18.90
2509.80	65.23	331	2.1	H	-42.1	1.10	8.70	-34.50	-13	21.50
2509.80	66.36	104	1.8	V	-40.8	1.10	8.70	-33.20	-13	20.20
3346.40	58.13	54	2.5	H	-47.9	1.30	8.70	-40.50	-13	27.50
3346.40	57.26	241	1.8	V	-48.4	1.30	8.70	-41.00	-13	28.00
High Channel										
338.1	42.86	51	1.0	H	-64.0	0.98	0.0	-64.98	-13	51.98
92.5	42.77	99	1.4	V	-65.6	0.75	0.0	-66.35	-13	53.35
1697.60	68.13	328	2.5	H	-39.4	0.90	8.00	-32.30	-13	19.30
1697.60	68.87	109	1.9	V	-39.3	0.90	8.00	-32.20	-13	19.20
2546.40	64.26	115	2.1	H	-43.1	1.10	8.70	-35.50	-13	22.50
2546.40	65.67	103	2.5	V	-41.4	1.10	8.70	-33.80	-13	20.80
3395.20	61.56	304	1.3	H	-44.4	1.30	8.80	-36.90	-13	23.90
3395.20	60.59	93	2.0	V	-45.1	1.30	8.80	-37.60	-13	24.60
PCS 1900 (30MHz-20GHz)										
Low Channel										
338.1	42.40	171	2.4	H	-64.5	0.98	0.0	-65.48	-13	52.48
92.5	42.61	109	1.8	V	-65.8	0.75	0.0	-66.55	-13	53.55
3700.40	56.03	282	2.0	H	-49.4	1.30	8.80	-41.90	-13	28.90
3700.40	55.47	20	1.0	V	-49.8	1.30	8.80	-42.30	-13	29.30
5550.60	58.73	167	1.4	H	-43.7	1.70	10.30	-35.10	-13	22.10
5550.60	59.18	45	2.3	V	-43.4	1.70	10.30	-34.80	-13	21.80
Middle Channel										
338.1	43.11	221	2.2	H	-63.8	0.98	0.0	-64.78	-13	51.78
92.5	42.85	184	2.1	V	-65.6	0.75	0.0	-66.35	-13	53.35
3760.00	57.65	23	1.1	H	-47.5	1.30	8.90	-39.90	-13	26.90
3760.00	58.23	343	1.5	V	-46.8	1.30	8.90	-39.20	-13	26.20
5640.00	59.46	19	1.8	H	-43.0	1.70	10.30	-34.40	-13	21.40
5640.00	58.01	1	2.3	V	-44.5	1.70	10.30	-35.90	-13	22.90

Frequency (MHz)	Receiver Reading (dBµV)	Turn Table	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
		Angle Degree	Height (m)	Polar (H / V)	Substituted Level (dBm)	Cable loss (dB)	Antenna Gain (dB)			
High Channel										
338.1	43.26	293	2.3	H	-63.6	0.98	0.0	-64.58	-13	51.58
92.5	42.94	47	1.1	V	-65.5	0.75	0.0	-66.25	-13	53.25
3819.60	61.78	166	1.8	H	-43.4	1.30	8.90	-35.80	-13	22.80
3819.60	62.79	139	1.3	V	-42.3	1.30	8.90	-34.70	-13	21.70
5729.40	58.76	142	1.3	H	-43.4	1.70	10.40	-34.70	-13	21.70
5729.40	57.92	201	1.3	V	-44.4	1.70	10.40	-35.70	-13	22.70

Frequency (MHz)	Receiver Reading (dBµV)	Turn Table	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
		Angle Degree	Height (m)	Polar (H / V)	Substituted Level (dBm)	Cable loss (dB)	Antenna Gain (dB)			
WCDMA Band 2(30MHz-20GHz)										
Low Channel										
338.1	42.33	332	1.3	H	-64.6	0.98	0.0	-65.58	-13	52.58
92.5	41.56	9	1.8	V	-66.8	0.75	0.0	-67.55	-13	54.55
3704.80	49.95	83	2.1	H	-55.5	1.30	8.80	-48.00	-13	35.00
3704.80	50.17	53	2.0	V	-55.1	1.30	8.80	-47.60	-13	34.60
5557.20	69.12	182	1.6	H	-33.3	1.70	10.30	-24.70	-13	11.70
5557.20	68.92	280	1.0	V	-33.6	1.70	10.30	-25.00	-13	12.00
Middle Channel										
338.1	42.65	292	2.2	H	-64.3	0.98	0.0	-65.28	-13	52.28
92.5	41.70	182	1.9	V	-66.7	0.75	0.0	-67.45	-13	54.45
3760.00	49.02	253	1.5	H	-56.1	1.30	8.90	-48.50	-13	35.50
3760.00	48.63	155	1.4	V	-56.4	1.30	8.90	-48.80	-13	35.80
5640.00	65.12	80	1.6	H	-37.3	1.70	10.30	-28.70	-13	15.70
5640.00	64.85	316	1.2	V	-37.7	1.70	10.30	-29.10	-13	16.10
High Channel										
338.1	42.92	216	1.6	H	-64.0	0.98	0.0	-64.98	-13	51.98
92.5	41.86	201	1.9	V	-66.5	0.75	0.0	-67.25	-13	54.25
3815.20	50.47	62	1.3	H	-54.7	1.30	8.90	-47.10	-13	34.10
3815.20	51.68	137	1.1	V	-53.4	1.30	8.90	-45.80	-13	32.80
5722.80	65.24	236	2.4	H	-36.9	1.70	10.40	-28.20	-13	15.20
5722.80	64.45	243	1.5	V	-37.9	1.70	10.40	-29.20	-13	16.20
WCDMA Band 5(30MHz-10GHz)										
Low Channel										
338.1	43.16	255	2.3	H	-63.7	0.98	0.0	-64.68	-13	51.68
92.5	42.32	218	1.6	V	-66.1	0.75	0.0	-66.85	-13	53.85
1652.80	53.05	6	1.7	H	-54.5	0.90	8.00	-47.40	-13	34.40
1652.80	52.13	54	1.1	V	-56.0	0.90	8.00	-48.90	-13	35.90
2479.20	55.01	6	1.2	H	-52.4	1.10	8.70	-44.80	-13	31.80
2479.20	54.92	253	2.5	V	-52.2	1.10	8.70	-44.60	-13	31.60
3305.60	46.32	8	2.0	H	-59.7	1.30	8.70	-52.30	-13	39.30
3305.60	46.01	311	1.9	V	-59.7	1.30	8.70	-52.30	-13	39.30

Frequency (MHz)	Receiver Reading (dBµV)	Turn Table	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
		Angle Degree	Height (m)	Polar (H / V)	Substituted Level (dBm)	Cable loss (dB)	Antenna Gain (dB)			
Middle Channel										
338.1	43.44	131	2.4	H	-63.5	0.98	0.0	-64.48	-13	51.48
92.5	42.52	313	1.3	V	-65.9	0.75	0.0	-66.65	-13	53.65
1673.20	50.71	170	2.0	H	-56.9	0.90	8.00	-49.80	-13	36.80
1673.20	50.34	45	1.4	V	-57.8	0.90	8.00	-50.70	-13	37.70
2509.80	53.26	126	1.6	H	-54.1	1.10	8.70	-46.50	-13	33.50
2509.80	52.34	232	1.5	V	-54.8	1.10	8.70	-47.20	-13	34.20
3346.40	46.25	12	2.1	H	-59.7	1.30	8.70	-52.30	-13	39.30
3346.40	46.79	41	1.9	V	-58.9	1.30	8.70	-51.50	-13	38.50
High Channel										
338.1	42.68	99	1.4	H	-64.2	0.98	0.0	-65.18	-13	52.18
92.5	42.84	168	1.0	V	-65.6	0.75	0.0	-66.35	-13	53.35
1652.80	52.54	249	1.7	H	-55.0	0.90	8.00	-47.90	-13	34.90
1652.80	51.96	137	1.7	V	-56.2	0.90	8.00	-49.10	-13	36.10
2479.20	53.05	139	1.6	H	-54.3	1.10	8.70	-46.70	-13	33.70
2479.20	52.84	262	1.5	V	-54.3	1.10	8.70	-46.70	-13	33.70
3305.60	46.24	107	1.7	H	-59.7	1.30	8.70	-52.30	-13	39.30
3305.60	46.75	97	1.5	V	-58.9	1.30	8.70	-51.50	-13	38.50

LTE Bands: (pre-scan QPSK & 16QAM & 64QAM with all bandwidths, the worst case as below)

Frequency (MHz)	Receiver Reading (dBμV)	Turn Table	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
		Angle Degree	Height (m)	Polar (H / V)	Substituted Level (dBm)	Cable loss (dB)	Antenna Gain (dB)			
Band 2 (30MHz-20GHz)										
QPSK, 1.4MHz, Low Channel										
338.1	41.76	8	1.3	H	-65.1	0.98	0.0	-66.08	-13	53.08
92.5	42.30	151	1.9	V	-66.1	0.75	0.0	-66.85	-13	53.85
3701.40	50.84	241	1.8	H	-54.6	1.30	8.80	-47.10	-13	34.10
3701.40	50.72	209	1.0	V	-54.5	1.30	8.80	-47.00	-13	34.00
5552.10	73.29	38	2.1	H	-29.1	1.70	10.30	-20.50	-13	7.50
5552.10	72.72	25	1.3	V	-29.8	1.70	10.30	-21.20	-13	8.20
QPSK, 1.4MHz, Middle Channel										
338.1	41.89	289	1.9	H	-65.0	0.98	0.0	-65.98	-13	52.98
92.5	42.46	318	1.5	V	-65.9	0.75	0.0	-66.65	-13	53.65
3760.00	51.75	346	2.2	H	-53.4	1.30	8.90	-45.80	-13	32.80
3760.00	51.61	195	2.1	V	-53.5	1.30	8.90	-45.90	-13	32.90
5640.00	71.71	230	2.0	H	-30.7	1.70	10.30	-22.10	-13	9.10
5640.00	70.92	135	2.3	V	-31.6	1.70	10.30	-23.00	-13	10.00
QPSK, 1.4MHz, High Channel										
338.1	42.15	57	1.0	H	-64.8	0.98	0.0	-65.78	-13	52.78
92.5	42.68	39	1.0	V	-65.7	0.75	0.0	-66.45	-13	53.45
3818.60	53.02	340	1.3	H	-52.1	1.30	8.90	-44.50	-13	31.50
3818.60	53.56	357	1.6	V	-51.5	1.30	8.90	-43.90	-13	30.90
5727.90	72.49	219	2.4	H	-29.7	1.70	10.40	-21.00	-13	8.00
5727.90	71.12	266	2.2	V	-31.2	1.70	10.40	-22.50	-13	9.50
Band 5(30MHz-10GHz)										
QPSK, 1.4MHz, Low Channel										
338.1	43.26	133	2.2	H	-63.6	0.98	0.0	-64.58	-13	51.58
92.5	41.95	107	2.0	V	-66.5	0.75	0.0	-67.25	-13	54.25
1649.40	53.68	30	2.2	H	-54.0	0.90	7.90	-47.00	-13	34.00
1649.40	52.46	358	2.3	V	-55.7	0.90	7.90	-48.70	-13	35.70
2474.10	65.19	319	1.6	H	-42.2	1.10	8.70	-34.60	-13	21.60
2474.10	64.54	305	1.8	V	-42.6	1.10	8.70	-35.00	-13	22.00
3298.80	46.31	76	1.0	H	-59.7	1.30	8.70	-52.30	-13	39.30
3298.80	47.18	311	2.4	V	-58.5	1.30	8.70	-51.10	-13	38.10
QPSK, 1.4MHz, Middle Channel										
338.1	43.52	339	1.4	H	-63.4	0.98	0.0	-64.38	-13	51.38
92.5	42.78	77	1.3	V	-65.6	0.75	0.0	-66.35	-13	53.35
1673.00	52.12	355	1.2	H	-55.4	0.90	8.00	-48.30	-13	35.30
1673.00	51.34	251	1.7	V	-56.8	0.90	8.00	-49.70	-13	36.70
2509.50	64.58	181	2.4	H	-42.8	1.10	8.70	-35.20	-13	22.20
2509.50	63.01	25	2.2	V	-44.1	1.10	8.70	-36.50	-13	23.50
3346.00	46.28	122	1.9	H	-59.7	1.30	8.70	-52.30	-13	39.30
3346.00	46.39	98	2.0	V	-59.3	1.30	8.70	-51.90	-13	38.90
QPSK, 1.4MHz, High Channel										
338.1	43.76	230	1.9	H	-63.1	0.98	0.0	-64.08	-13	51.08
92.5	42.91	97	1.2	V	-65.5	0.75	0.0	-66.25	-13	53.25

1696.60	55.17	110	2.0	H	-52.4	0.90	8.00	-45.30	-13	32.30
1696.60	54.78	345	2.3	V	-53.4	0.90	8.00	-46.30	-13	33.30
2544.90	66.29	83	2.3	H	-41.1	1.10	8.70	-33.50	-13	20.50
2544.90	65.04	319	1.5	V	-42.1	1.10	8.70	-34.50	-13	21.50
3393.20	46.65	44	1.1	H	-59.3	1.30	8.80	-51.80	-13	38.80
3393.20	47.34	212	1.2	V	-58.3	1.30	8.80	-50.80	-13	37.80
Band 7(30MHz-26.5GHz)										
QPSK, 5MHz, Low Channel										
338.1	43.33	130	1.5	H	-63.6	0.98	0.0	-64.58	-25	39.58
92.5	42.85	209	1.6	V	-65.6	0.75	0.0	-66.35	-25	41.35
5005.00	64.62	112	1.6	H	-38.7	1.50	9.70	-30.50	-25	5.50
5005.00	63.26	192	1.7	V	-39.3	1.50	9.70	-31.10	-25	6.10
7507.50	46.81	37	1.7	H	-49.2	1.90	10.40	-40.70	-25	15.70
7507.50	47.37	37	1.5	V	-48.9	1.90	10.40	-40.40	-25	15.40
QPSK, 5MHz, Middle Channel										
338.1	43.56	245	1.1	H	-63.3	0.98	0.0	-64.28	-25	39.28
92.5	43.11	94	2.1	V	-65.3	0.75	0.0	-66.05	-25	41.05
5070.00	64.73	265	2.2	H	-38.4	1.50	9.80	-30.10	-25	5.10
5070.00	63.02	272	1.5	V	-39.6	1.50	9.80	-31.30	-25	6.30
7605.00	45.34	355	2.1	H	-50.5	1.90	10.50	-41.90	-25	16.90
7605.00	46.46	237	1.4	V	-49.8	1.90	10.50	-41.20	-25	16.20
QPSK, 5MHz, High Channel										
338.1	43.68	58	1.3	H	-63.2	0.98	0.0	-64.18	-25	39.18
92.5	43.34	281	1.6	V	-65.1	0.75	0.0	-65.85	-25	40.85
5135.00	65.91	349	1.9	H	-37.3	1.50	9.80	-29.00	-25	4.00
5135.00	64.13	232	1.9	V	-38.5	1.50	9.80	-30.20	-25	5.20
7702.50	44.86	211	1.2	H	-50.9	1.90	10.60	-42.20	-25	17.20
7702.50	45.52	148	1.7	V	-50.6	1.90	10.60	-41.90	-25	16.90
Band 12(30MHz-10GHz)										
QPSK, 1.4MHz, Low Channel										
338.1	42.45	211	2.5	H	-64.5	0.98	0.0	-65.48	-13	52.48
92.5	44.16	56	1.9	V	-64.2	0.75	0.0	-64.95	-13	51.95
1399.40	50.97	150	1.0	H	-56.7	0.80	7.40	-50.10	-13	37.10
1399.40	51.42	254	1.7	V	-57.0	0.80	7.40	-50.40	-13	37.40
2099.10	68.47	277	1.4	H	-38.8	1.00	8.20	-31.60	-13	18.60
2099.10	67.43	235	1.7	V	-40.4	1.00	8.20	-33.20	-13	20.20
2798.80	47.91	36	2.1	H	-58.7	1.20	8.60	-51.30	-13	38.30
2798.80	48.15	2	1.6	V	-58.2	1.20	8.60	-50.80	-13	37.80
QPSK, 1.4MHz, Middle Channel										
338.1	42.67	330	2.3	H	-64.2	0.98	0.0	-65.18	-13	52.18
92.5	44.32	33	2.4	V	-64.1	0.75	0.0	-64.85	-13	51.85
1415.00	50.94	341	1.9	H	-56.8	0.80	7.40	-50.20	-13	37.20
1415.00	51.62	252	1.4	V	-56.8	0.80	7.40	-50.20	-13	37.20
2122.50	69.27	328	1.5	H	-38.0	1.00	8.20	-30.80	-13	17.80
2122.50	68.45	181	1.0	V	-39.4	1.00	8.20	-32.20	-13	19.20
2830.00	47.56	328	1.3	H	-59.0	1.20	8.60	-51.60	-13	38.60
2830.00	47.42	173	1.9	V	-58.9	1.20	8.60	-51.50	-13	38.50
QPSK, 1.4MHz, High Channel										
338.1	43.86	212	1.8	H	-63.0	0.98	0.0	-63.98	-13	50.98
92.5	44.52	177	1.8	V	-63.9	0.75	0.0	-64.65	-13	51.65

1430.60	51.01	1	2.4	H	-56.7	0.80	7.40	-50.10	-13	37.10
1430.60	51.35	43	1.4	V	-57.1	0.80	7.40	-50.50	-13	37.50
2145.90	66.37	308	1.0	H	-40.9	1.00	8.20	-33.70	-13	20.70
2145.90	65.36	55	1.8	V	-42.5	1.00	8.20	-35.30	-13	22.30
2861.20	48.12	323	2.1	H	-58.2	1.20	8.60	-50.80	-13	37.80
2861.20	48.35	14	2.4	V	-57.7	1.20	8.60	-50.30	-13	37.30
Band 41 (30MHz-27GHz)										
QPSK, 5MHz, Low Channel										
338.1	43.55	204	1.3	H	-63.4	0.98	0.0	-64.38	-25	39.38
92.5	42.89	297	1.5	V	-65.5	0.75	0.0	-66.25	-25	41.25
5075.00	58.46	84	1.7	H	-44.7	1.50	9.80	-36.40	-25	11.40
5075.00	57.03	242	1.0	V	-45.6	1.50	9.80	-37.30	-25	12.30
7612.50	47.19	67	2.1	H	-48.7	1.90	10.50	-40.10	-25	15.10
7612.50	46.02	99	2.0	V	-50.2	1.90	10.50	-41.60	-25	16.60
QPSK, 5MHz, Middle Channel										
338.1	44.26	259	1.3	H	-62.6	0.98	0.0	-63.58	-25	38.58
92.5	43.64	123	2.0	V	-64.8	0.75	0.0	-65.55	-25	40.55
5190.00	65.26	249	1.1	H	-37.8	1.60	9.90	-29.50	-25	4.50
5190.00	64.19	42	1.7	V	-38.5	1.60	9.90	-30.20	-25	5.20
7785.00	46.27	159	1.0	H	-49.5	1.90	10.60	-40.80	-25	15.80
7785.00	45.83	276	2.1	V	-50.3	1.90	10.60	-41.60	-25	16.60
QPSK, 5MHz, High Channel										
338.1	44.52	261	1.8	H	-62.4	0.98	0.0	-63.38	-25	38.38
92.5	43.70	245	1.9	V	-64.7	0.75	0.0	-65.45	-25	40.45
5305.00	65.65	353	2.2	H	-37.3	1.60	10.10	-28.80	-25	3.80
5305.00	64.13	34	1.7	V	-38.6	1.60	10.10	-30.10	-25	5.10
7957.50	47.85	108	1.2	H	-47.7	1.90	10.80	-38.80	-25	13.80
7957.50	46.36	10	1.4	V	-49.6	1.90	10.80	-40.70	-25	15.70

Note:
Absolute Level = Reading Level + Substituted Factor
Substituted Factor contains: Substituted Level - Cable loss+ Antenna Gain
Margin = Absolute Level - Limit

FCC§ 22.917 (a); § 24.238 (a); §27.53 (a) (g) (h)(m)(n) - BAND EDGES

Applicable Standard

According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to FCC §27.53 (a), For operations in the 2305-2320 MHz band and the 2345-2360 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power P (with averaging performed only during periods of transmission) within the licensed band(s) of operation, in watts, by the following amounts:
(4)For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:
(i) By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz;
(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz;
(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

According to FCC §27.53 (g) , For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

According to FCC §27.53 (h), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to FCC §27.53 (m), For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5MHz.

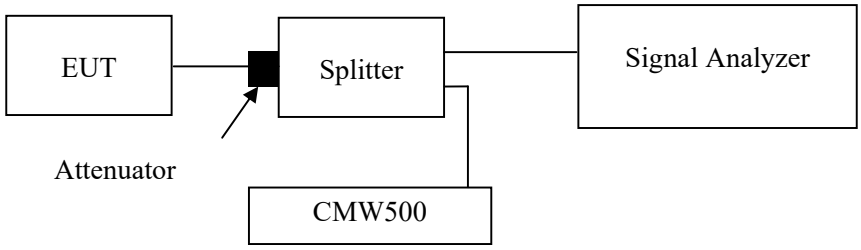
According to FCC §27.53(n)(2), For mobile operations in the 3450 – 3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed − 13 dBm/MHz. Compliance with this paragraph (n)(2) is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed, but limited to a maximum of 200 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

Test Procedure

ANSI C63.26-2015 Section 5.7

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency



Test Data

Environmental Conditions

Temperature:	23~24.5 ℃
Relative Humidity:	48~56 %
ATM Pressure:	101.0kPa

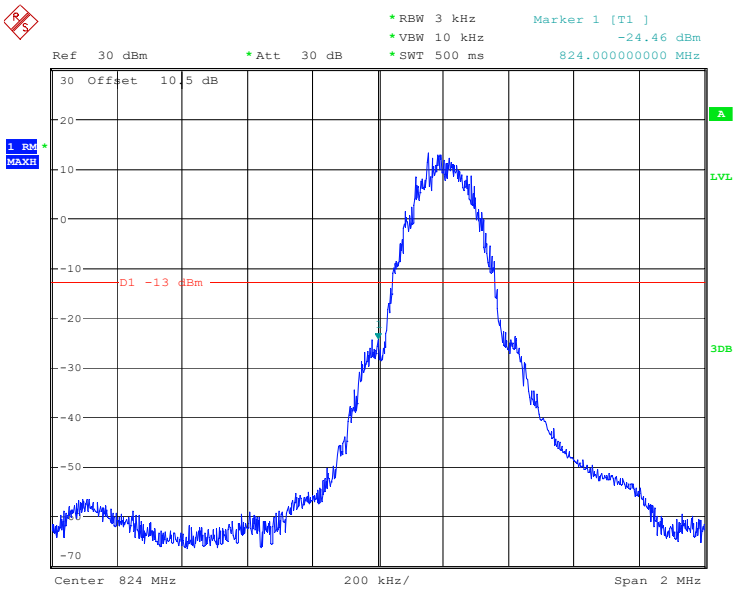
The testing was performed by Bruce Lin from 2024-02-28 to 2024-03-13

EUT operation mode: Transmitting (Worst case)

Test Result: Compliant

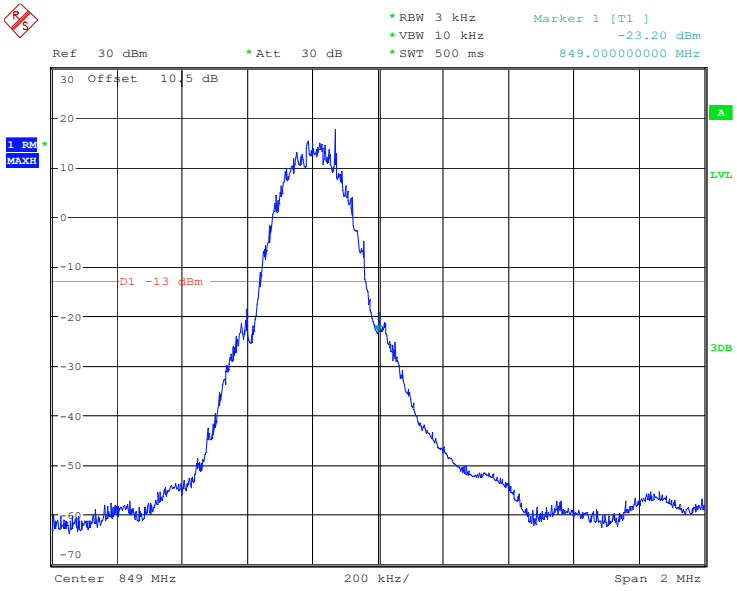
Please refer to the following plots.

Cellular Band, Left Band Edge for GSM (GMSK) Mode



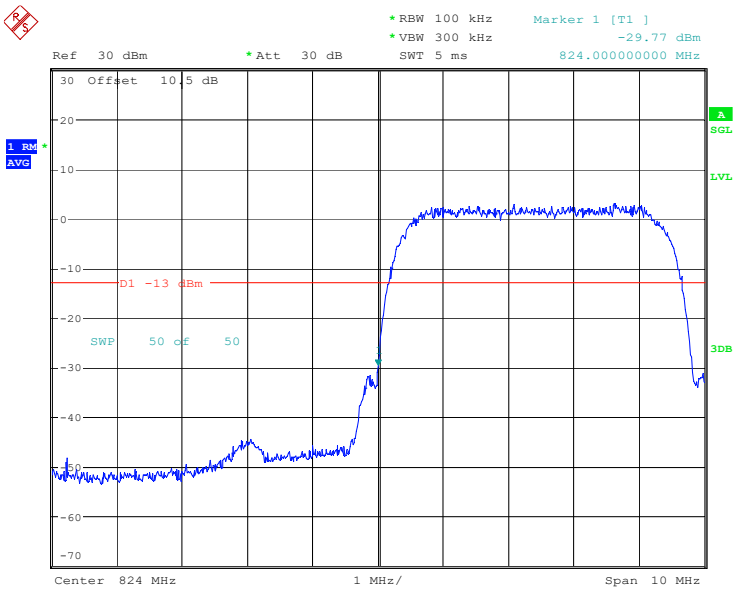
ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 4.MAR.2024 23:07:05

Cellular Band, Right Band Edge for GSM (GMSK) Mode



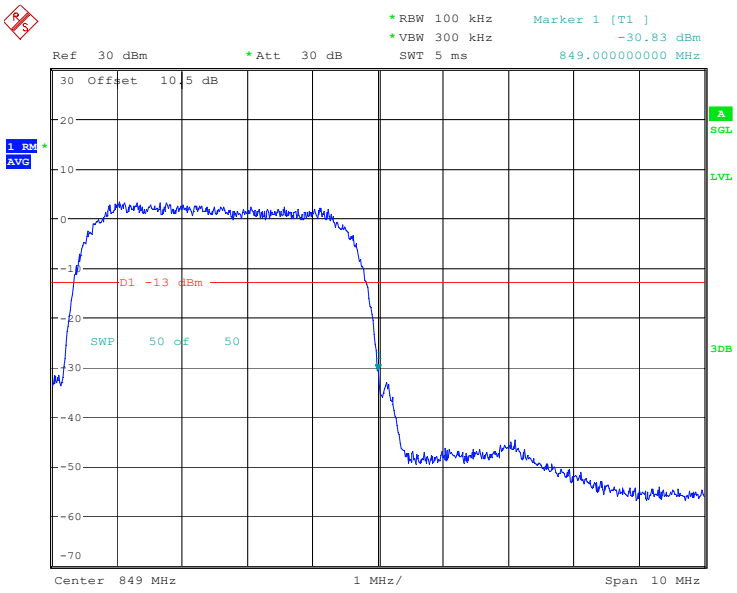
ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 4.MAR.2024 23:39:32

Cellular Band, Left Band Edge for RMC (BPSK) Mode



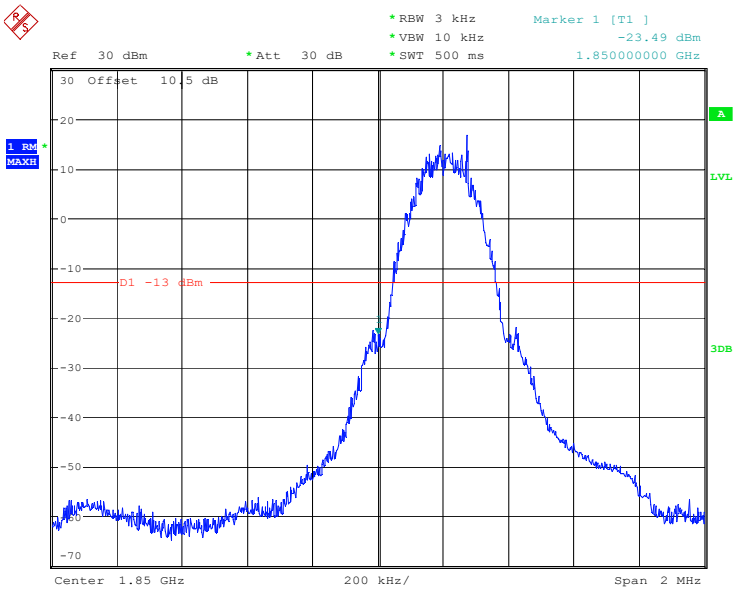
ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 2.MAR.2024 00:45:33

Cellular Band, Right Band Edge for RMC (BPSK) Mode



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 2.MAR.2024 00:40:20

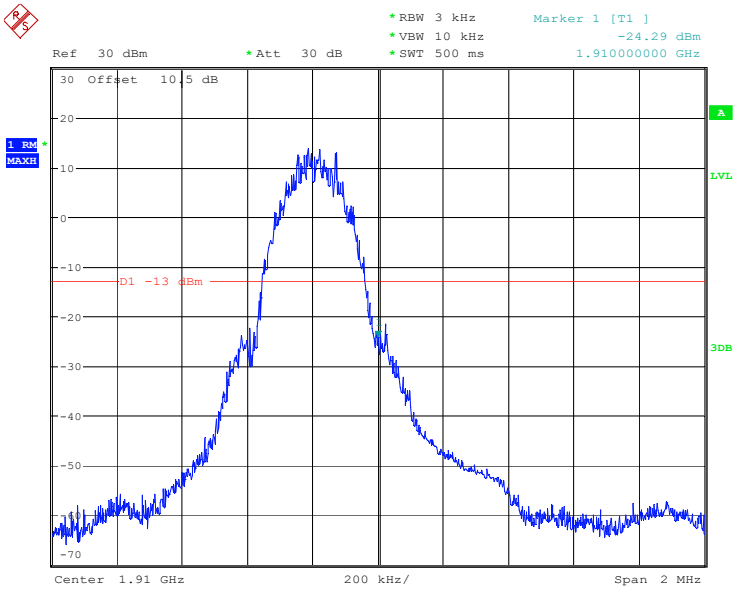
PCS Band, Left Band Edge for GSM (GMSK) Mode



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

Date: 4.MAR.2024 22:46:40

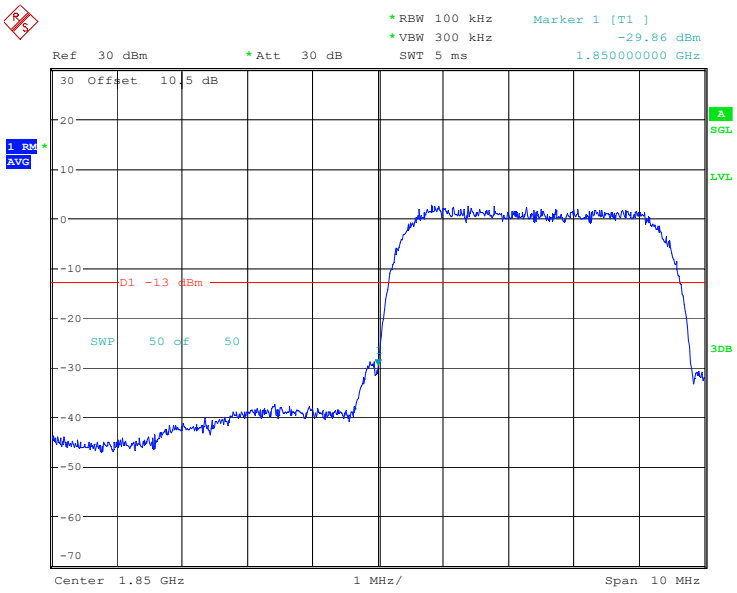
PCS Band, Right Band Edge for GSM (GMSK) Mode



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin

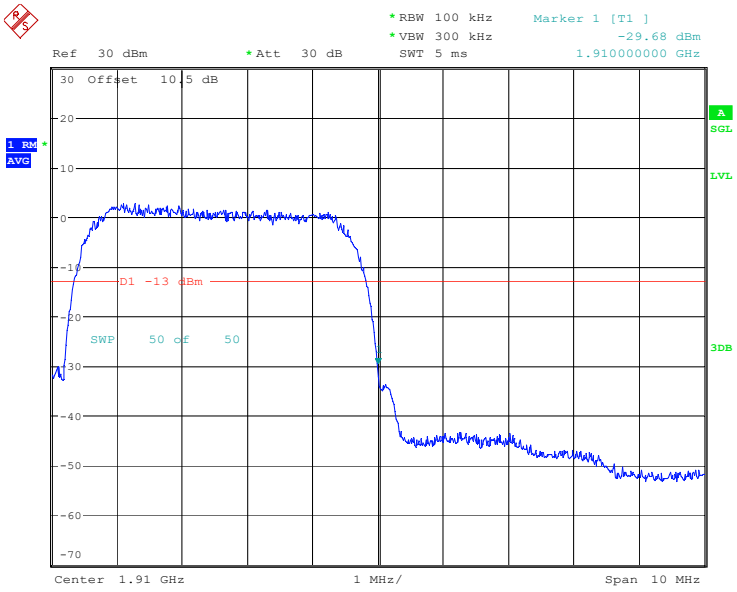
Date: 4.MAR.2024 22:56:51

PCS Band, Left Band Edge for RMC (BPSK) Mode



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 1.MAR.2024 22:37:11

PCS Band, Right Band Edge for RMC (BPSK) Mode



ProjectNo.:SZ1231208-73855E Tester:Bruce Lin
Date: 1.MAR.2024 22:49:46

The test plots of LTE bands please refer to the Appendix C.

FCC § 2.1055; § 22.355; § 24.235; §27.54 - FREQUENCY STABILITY

Applicable Standard

FCC § 2.1055, §22.355, §24.235&§27.54.

According to FCC §2.1055, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency Range (MHz)	Base, fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile > 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929.	5.0	N/A	N/A
929 to 960.	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

According to §24.235&§27.54, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

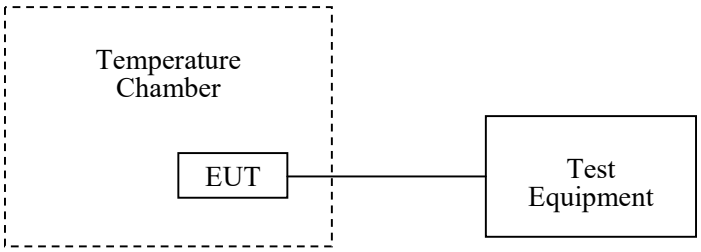
Test Procedure

ANSI C63.26-2015 Section 5.6

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: For hand carried, battery powered equipment; reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.



Test Data

Environmental Conditions

Temperature:	23~24.5 ℃
Relative Humidity:	48~56 %
ATM Pressure:	101.0kPa

The testing was performed by Bruce Lin from 2024-02-28 to 2024-03-13.

EUT operation mode: Transmitting

Test Result: Compliant

Please refer to the following tables.

Cellular Band (Part 22H)

GSM Mode

Test Modulation:	GMSK		Test Channel	836.6	MHz
Test Item	Temperature (°C)	Voltage (V_{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.85	114.126	0.136	2.5
	-20	3.85	118.996	0.142	2.5
	-10	3.85	102.215	0.122	2.5
	0	3.85	100.117	0.120	2.5
	10	3.85	107.607	0.129	2.5
	20	3.85	110.654	0.132	2.5
	30	3.85	115.846	0.138	2.5
	40	3.85	108.407	0.130	2.5
	50	3.85	118.452	0.142	2.5
Frequency Stability vs. Voltage	20	3.4	117.814	0.141	2.5
	20	4.7	106.160	0.127	2.5

WCDMA Mode

Test Modulation:	WCDMA R99		Test Channel:	836.6	MHz
Test Item	Temperature (°C)	Voltage (V_{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.85	110.997	0.133	2.5
	-20	3.85	117.339	0.140	2.5
	-10	3.85	115.417	0.138	2.5
	0	3.85	112.874	0.135	2.5
	10	3.85	118.486	0.142	2.5
	20	3.85	113.887	0.136	2.5
	30	3.85	113.844	0.136	2.5
	40	3.85	101.811	0.122	2.5
	50	3.85	101.350	0.121	2.5
Frequency Stability vs. Voltage	20	3.4	105.222	0.126	2.5
	20	4.7	104.917	0.125	2.5

PCS Band (Part 24E)

GSM Mode

Test Mode:	GMSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	1850.025	1850.000	1909.988	1910.000
	-20	3.85	1850.011	1850.000	1909.991	1910.000
	-10	3.85	1850.001	1850.000	1909.989	1910.000
	0	3.85	1850.330	1850.000	1909.988	1910.000
	10	3.85	1850.016	1850.000	1909.996	1910.000
	20	3.85	1850.018	1850.000	1909.992	1910.000
	30	3.85	1850.314	1850.000	1909.993	1910.000
	40	3.85	1850.026	1850.000	1909.974	1910.000
	50	3.85	1850.021	1850.000	1909.978	1910.000
Frequency Stability vs. Voltage	20	3.4	1850.006	1850.000	1909.979	1910.000
	20	4.7	1850.011	1850.000	1909.974	1910.000

WCDMA Mode

Test Mode:	WCDMA R99	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	1850.028	1850.000	1909.360	1910.000
	-20	3.85	1850.029	1850.000	1909.998	1910.000
	-10	3.85	1850.025	1850.000	1909.980	1910.000
	0	3.85	1850.025	1850.000	1909.980	1910.000
	10	3.85	1850.025	1850.000	1909.976	1910.000
	20	3.85	1850.016	1850.000	1909.999	1910.000
	30	3.85	1850.022	1850.000	1909.986	1910.000
	40	3.85	1850.029	1850.000	1909.987	1910.000
	50	3.85	1850.008	1850.000	1909.982	1910.000
Frequency Stability vs. Voltage	20	3.4	1850.022	1850.000	1909.996	1910.000
	20	4.7	1850.011	1850.000	1909.992	1910.000

LTE

Band 2

Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	1850.028	1850.000	1909.977	1910.000
	-20	3.85	1850.012	1850.000	1909.999	1910.000
	-10	3.85	1850.011	1850.000	1909.993	1910.000
	0	3.85	1850.024	1850.000	1909.993	1910.000
	10	3.85	1850.009	1850.000	1909.989	1910.000
	20	3.85	1850.010	1850.000	1909.986	1910.000
	30	3.85	1850.021	1850.000	1909.975	1910.000
	40	3.85	1850.010	1850.000	1909.990	1910.000
	50	3.85	1850.016	1850.000	1909.979	1910.000
Frequency Stability vs. Voltage	20	3.4	1850.019	1850.000	1909.974	1910.000
	20	4.7	1850.023	1850.000	1909.984	1910.000
Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	1850.023	1850.000	1909.979	1910.000
	-20	3.85	1850.013	1850.000	1909.997	1910.000
	-10	3.85	1850.013	1850.000	1909.973	1910.000
	0	3.85	1850.029	1850.000	1909.991	1910.000
	10	3.85	1850.023	1850.000	1909.972	1910.000
	20	3.85	1850.003	1850.000	1909.979	1910.000
	30	3.85	1850.013	1850.000	1909.985	1910.000
	40	3.85	1850.002	1850.000	1909.986	1910.000
	50	3.85	1850.012	1850.000	1909.975	1910.000
Frequency Stability vs. Voltage	20	3.4	1850.021	1850.000	1909.994	1910.000
	20	4.7	1850.019	1850.000	1909.985	1910.000

Band 5

Test Modulation:	10 MHz QPSK		Test Channel:	836.5	MHz
Test Item	Temperature (℃)	Voltage (V_{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.85	112.611	0.135	2.5
	-20	3.85	111.207	0.133	2.5
	-10	3.85	113.482	0.136	2.5
	0	3.85	107.400	0.128	2.5
	10	3.85	109.370	0.131	2.5
	20	3.85	119.458	0.143	2.5
	30	3.85	115.224	0.138	2.5
	40	3.85	112.752	0.135	2.5
	50	3.85	103.023	0.123	2.5
Frequency Stability vs. Voltage	20	3.4	111.930	0.134	2.5
	20	4.7	103.689	0.124	2.5
Test Modulation:	**10 MHz 16QAM**		**Test Channel:**	**836.5**	**MHz**
Test Item	**Temperature (℃)**	**Voltage (V_{DC})**	**Frequency Error**		**Limit**
			(Hz)	**(ppm)**	**(ppm)**
Frequency Stability vs. Temperature	-30	3.85	110.465	0.132	2.5
	-20	3.85	111.498	0.133	2.5
	-10	3.85	103.461	0.124	2.5
	0	3.85	100.006	0.120	2.5
	10	3.85	118.395	0.142	2.5
	20	3.85	115.810	0.138	2.5
	30	3.85	117.401	0.140	2.5
	40	3.85	116.564	0.139	2.5
	50	3.85	102.472	0.123	2.5
Frequency Stability vs. Voltage	20	3.4	108.178	0.129	2.5
	20	4.7	113.204	0.135	2.5

Band 7

Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	2500.008	2500.00	2569.978	2570
	-20	3.85	2500.025	2500.00	2569.994	2570
	-10	3.85	2500.011	2500.00	2569.975	2570
	0	3.85	2500.025	2500.00	2569.978	2570
	10	3.85	2500.025	2500.00	2569.993	2570
	20	3.85	2500.006	2500.00	2569.978	2570
	30	3.85	2500.020	2500.00	2569.991	2570
	40	3.85	2500.009	2500.00	2569.994	2570
	50	3.85	2500.006	2500.00	2569.998	2570
Frequency Stability vs. Voltage	20	3.4	2500.018	2500.00	2569.988	2570
	20	4.7	2500.017	2500.00	2569.979	2570
Test Mode:	**20M 16QAM**	**Test Channel: Lowest for Lower Edge, Highest for Upper Edge**				
Test Item	**Temperature (℃)**	**Voltage (V_{DC})**	**Lower Edge (MHz)**		**Upper Edge (MHz)**	
			Result	**Limit**	**Result**	**Limit**
Frequency Stability vs. Temperature	-30	3.85	2500.015	2500.00	2569.975	2570
	-20	3.85	2500.026	2500.00	2569.981	2570
	-10	3.85	2500.013	2500.00	2569.994	2570
	0	3.85	2500.004	2500.00	2569.993	2570
	10	3.85	2500.011	2500.00	2569.977	2570
	20	3.85	2500.003	2500.00	2569.995	2570
	30	3.85	2500.021	2500.00	2569.995	2570
	40	3.85	2500.014	2500.00	2569.984	2570
	50	3.85	2500.017	2500.00	2569.990	2570
Frequency Stability vs. Voltage	20	3.4	2500.021	2500.00	2569.991	2570
	20	4.7	2500.009	2500.00	2569.970	2570

Band 12

Test Mode:	10M QPSK	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	699.021	699.00	715.971	716.00
	-20	3.85	699.006	699.00	715.987	716.00
	-10	3.85	699.018	699.00	715.999	716.00
	0	3.85	699.002	699.00	715.995	716.00
	10	3.85	699.008	699.00	715.986	716.00
	20	3.85	699.012	699.00	715.992	716.00
	30	3.85	699.027	699.00	715.999	716.00
	40	3.85	699.330	699.00	715.979	716.00
	50	3.85	699.003	699.00	715.994	716.00
Frequency Stability vs. Voltage	20	3.4	699.006	699.00	715.972	716.00
	20	4.7	699.016	699.00	715.789	716.00
Test Mode:	**10M 16QAM**	**Test Channel: Lowest for Lower Edge, Highest for Upper Edge**				
Test Item	**Temperature (℃)**	**Voltage (V_{DC})**	**Lower Edge (MHz)**		**Upper Edge (MHz)**	
			Result	**Limit**	**Result**	**Limit**
Frequency Stability vs. Temperature	-30	3.85	699.021	699.00	715.999	716.00
	-20	3.85	699.023	699.00	715.992	716.00
	-10	3.85	699.027	699.00	715.982	716.00
	0	3.85	699.004	699.00	715.993	716.00
	10	3.85	699.001	699.00	715.979	716.00
	20	3.85	699.010	699.00	715.982	716.00
	30	3.85	699.030	699.00	715.978	716.00
	40	3.85	699.017	699.00	715.989	716.00
	50	3.85	699.004	699.00	715.999	716.00
Frequency Stability vs. Voltage	20	3.4	699.010	699.00	715.994	716.00
	20	4.7	699.020	699.00	715.985	716.00

Band 41

Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (℃)	Voltage (V_{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	3.85	2535.156	2535.00	2654.972	2655
	-20	3.85	2535.375	2535.00	2654.971	2655
	-10	3.85	2535.387	2535.00	2654.991	2655
	0	3.85	2535.073	2535.00	2654.984	2655
	10	3.85	2535.608	2535.00	2654.984	2655
	20	3.85	2535.448	2535.00	2654.560	2655
	30	3.85	2535.007	2535.00	2654.977	2655
	40	3.85	2535.156	2535.00	2654.978	2655
	50	3.85	2535.660	2535.00	2654.999	2655
Frequency Stability vs. Voltage	20	3.4	2535.248	2535.00	2654.993	2655
	20	4.7	2535.059	2535.00	2654.982	2655
Test Mode:	**20M 16QAM**	**Test Channel: Lowest for Lower Edge,Highest for Upper Edge**				
Test Item	**Temperature (℃)**	**Voltage (V_{DC})**	**Lower Edge (MHz)**		**Upper Edge (MHz)**	
			Result	**Limit**	**Result**	**Limit**
Frequency Stability vs. Temperature	-30	3.85	2535.355	2535.00	2654.980	2655
	-20	3.85	2535.567	2535.00	2654.989	2655
	-10	3.85	2535.346	2535.00	2654.994	2655
	0	3.85	2535.198	2535.00	2654.999	2655
	10	3.85	2535.157	2535.00	2654.998	2655
	20	3.85	2535.386	2535.00	2654.974	2655
	30	3.85	2535.037	2535.00	2654.976	2655
	40	3.85	2535.385	2535.00	2654.980	2655
	50	3.85	2535.171	2535.00	2654.999	2655
Frequency Stability vs. Voltage	20	3.4	2535.176	2535.00	2654.972	2655
	20	4.7	2535.367	2535.00	2654.987	2655

EUT PHOTOGRAPHS

Please refer to the attachment SZ1231208-73855E-RF External photo and SZ1231208-73855E-RF Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment SZ1231208-73855E-RF Test Setup photo.

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