

TEST REPORT

Applicant Name: Telepower Communication Co., Ltd.
Address: 5 Bld, Zone A, Hantian Technology Town No.17 ShenHai RD,
Nanhai District Foshan China
Report Number: 2401S34482E-RF-00E
FCC ID: 2AJ2B-T10

Test Standard (s)

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

Sample Description

Product Type: Ticket Validator
Model No.: T10
Multiple Model(s) No.: N/A
Trade Mark: Telpo
Date Received: 2024/04/26
Issue Date: 2024/08/09

Test Result:

Pass▲

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

Prepared and Checked By:

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Gala Liu
RF Engineer

Approved By:

Nancy Wang

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.

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	2401S34482E-RF-00E	Original Report	2024/08/09

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Ticket Validator			
Tested Model	T10			
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 4: 1710-1755MHz(TX); 2110-2155MHz(RX) LTE Band 7: 2500-2570MHz(TX); 2620-2690MHz(TX) LTE Band 38: 2570-2620MHz(TX/RX)			
Modulation Technique	2G: GMSK, 8PSK 3G: BPSK, QPSK, 16QAM, 64QAM 4G: QPSK, 16QAM			
Antenna Specification [#]	Antenna	Operation Bands	Antenna Gain (G _T) (dBi)	L _C (dB)
	MAIN ANT	GSM 850/WCDMA/LTE B5	0.69	1
		PCS1900/WCDMA/LTE B2	1.31	1
		LTE B4	0.07	1
		LTE B7	4.54	1
		LTE B38	4.07	1
	Note: Lc= Signal Attenuation in the connecting cable between the transmitter and antenna, in dB.			
Voltage Range	DC 9-40V from DC Port or DC 12/24V from POE			
Sample serial number	2KGH-1 for Radiated Emissions Test 2KGH-2 for RF Conducted Test (Assigned by BACL, Shenzhen)			
Sample/EUT Status	Good condition			
Normal/Extreme Condition [#]	L.V.: Low Voltage 9V _{DC} N.V.: Normal Voltage 12V _{DC} H.V.: High Voltage 40V _{DC}			
Adapter Information	N/A			

Objective

This test report is in accordance with Part 2-Subpart J, Part 22-Subpart H, Part 24-Subpart E, and Part 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°C
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 B4	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1753.5
	5	1712.5	1732.5	1752.5
	10	1715	1732.5	1750
	15	1717.5	1732.5	1747.5
	20	1720	1732.5	1745
LTE B7	5	2502.5	2535	2567.5
	10	2505	2535	2565
	15	2507.5	2535	2562.5
	20	2510	2535	2560
LTE B38	5	2572.5	2595	2617.5
	10	2575	2595	2615
	15	2577.5	2595	2612.5
	20	2580	2595	2610

Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

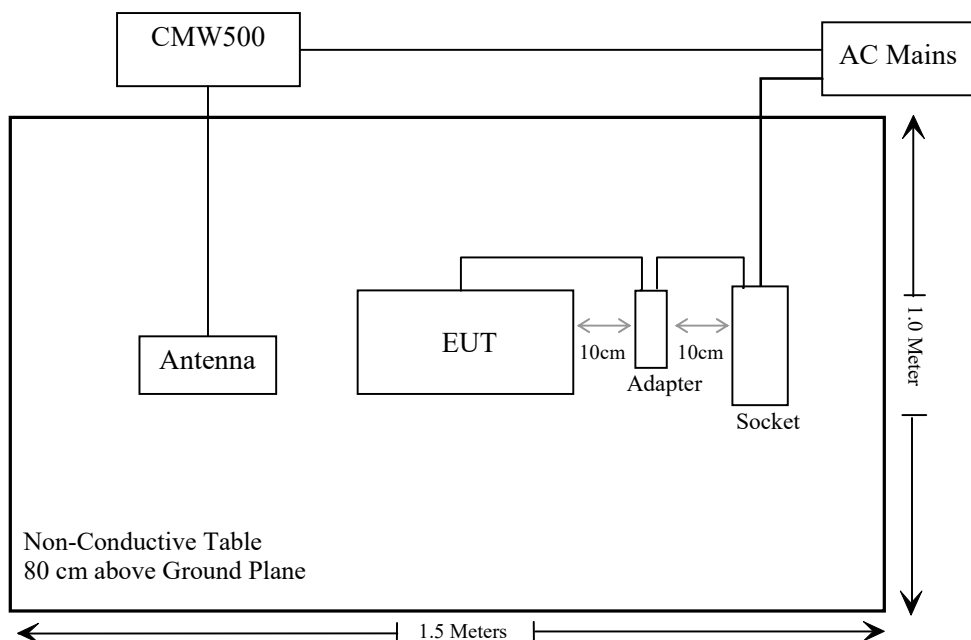
Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	146520
FOSHAN SHUNDE GUANYUDA POWER SUPPLY.CO.,LTD	Adapter	GMB36-120300-F	A2309154982

Support Cable Description

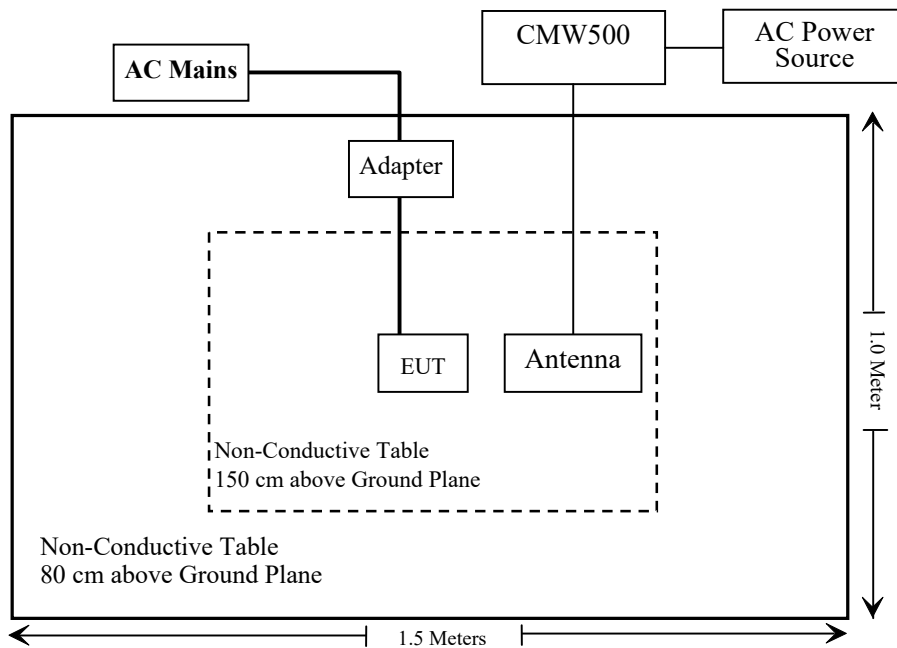
Cable Description	Length (m)	From / Port	To
Un-shielded Detachable AC cable	1.2	AC Power Source/ AC Mains	CMW500
Un-shielded Detachable AC Cable	1.5	Adapter	Socket
Un-shielding Un-Detachable DC Cable	1.0	EUT	Adapter
Un-shielding Un-Detachable AC Cable	1.5	Socket	AC Mains

Block Diagram of Test Setup

For Radiated Emissions (below 1GHz):



For Radiated Emissions (Above 1GHz):



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 & §2.1091	MPE-Based Exemption	Compliant
§2.1046; § 22.913 (a) (d); § 24.232 (c) (d); §27.50 (d) (h)	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 (c) (h) (m)	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_ Below 1GHz					
R&S	EMI Test Receiver	ESR3	102455	2024/01/16	2025/01/15
Sonoma instrument	Pre-amplifier	310 N	186238	2024/05/21	2025/05/20
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2023/07/20	2026/07/19
COM-POWER	Dipole Antenna	AD-100	721027	NCR	NCR
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
Agilent	Signal Generator	N5183A	MY50140588	2023/12/18	2024/12/17
Radiated Emission Test_ Above 1GHz					
Rohde & Schwarz	Spectrum Analyzer	FSV40	101605	2024/03/27	2025/03/26
COM-POWER	Pre-amplifier	PA-122	181919	2023/06/29	2024/06/28
Schwarzbeck	Horn Antenna	BBHA9120D(1201)	1143	2023/07/26	2026/07/25
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
A.H.System	Pre-amplifier	PAM-1840VH	190	2023/08/02	2024/08/01
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
Agilent	Signal Generator	N5183A	MY50140588	2023/12/18	2024/12/17
JD	Multiplex Switch Test Control Set	DT7220FSU	DQ77926	NCR	NCR
RF Conducted Test					
Rohde & Schwarz	SPECTRUM ANALYZER	FSU26	200982	2023/12/18	2024/12/17
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	146520	2023/06/08	2024/06/07
WEINSCHTEL	3dB Attenuator	Unknown	F-03-EM220	2023/07/04	2024/07/03
WEINSCHTEL	Power Splitter	1515	RH386	2023/07/04	2024/07/03
Unknown	RF Cable	65475	01670515	2023/07/04	2024/07/03
instek	DC Power Supply	GPS-3030DD	EM832096	NCR	NCR
Fluke	Digital Multimeter	287	19000011	2023/06/08	2024/06/07

* **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) & §2.1091- MPE-BASED EXEMPTION

Applicable Standard

According to subpart 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

According to KDB 447498 D04 Interim General RF Exposure Guidance

MPE-Based Exemption:

General frequency and separation-distance dependent MPE-based effective radiated power(ERP) thresholds are in Table B.1 [Table 1 of § 1.1307(b)(1)(i)(C)] to support an exemption from further evaluation from 300 kHz through 100 GHz.

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	$1,920 R^2$.
1.34-30	$3,450 R^2/f^2$.
30-300	$3.83 R^2$.
300-1,500	$0.0128 R^2 f$.
1,500-100,000	$19.2 R^2$.

For multiple RF sources: Multiple RF sources are exempt if:

in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation:

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

Result

Mode	Frequency (MHz)	Tune up conducted power [#]	Antenna Gain [#]		ERP		Evaluation Distance (cm)	ERP Limit (mW)
		(dBm)	(dBi)	(dBd)	(dBm)	(mW)		
BT	2402-2480	7.5	2.48	0.33	7.83	6.07	25	1200
BLE	2402-2480	-1.5	2.48	0.33	-1.17	0.76	25	1200
2.4G Wi-Fi	2412-2462	25.5	2.48	0.33	25.83	382.82	25	1200
5.2G Wi-Fi	5180-5240	11.0	2.49	0.34	11.34	13.61	25	1200
GSM850*	824-849	25.49	0.69	-1.46	24.03	252.93	25	659
PCS1900*	1850-1910	22.49	1.31	-0.84	21.65	146.22	25	1200
WCDMA B2	1850-1910	22.5	1.31	-0.84	21.66	146.55	25	1200
WCDMA B5	824-849	22.0	0.69	-1.46	20.54	113.24	25	659
LTE B2	1850-1910	22.5	1.31	-0.84	21.66	146.55	25	1200
LTE B4	1710-1755	21.5	0.07	-2.08	19.42	87.50	25	1200
LTE B7	2500-2570	21.5	4.54	2.39	23.89	244.91	25	1200
LTE B38	2570-2620	21.5	4.07	1.92	23.42	219.79	25	1200

Note: 1. The tune up conducted power and antenna gain was declared by the applicant.

2. The BT, 2.4G Wi-Fi and 5G Wi-Fi cannot transmit at same time.

3. 0dBd=2.15dBi

Note*: It was the time average power according to the duty cycle.

Mode		Tune-up Peak Output Power (dBm)			Tune-up Average Output Power (dBm)		
		Low	Middle	High	Low	Middle	High
GPRS850	1 slot	33.0	33.0	33.0	23.97	23.97	23.97
	2 slots	31.5	31.5	31.5	25.48	25.48	25.48
	3 slots	29.5	29.5	29.5	25.24	25.24	25.24
	4 slots	28.5	28.5	28.5	25.49	25.49	25.49
GPRS1900	1 slot	29.5	29.5	29.5	20.47	20.47	20.47
	2 slots	28.5	28.5	28.5	22.48	22.48	22.48
	3 slots	26.5	26.5	26.5	22.24	22.24	22.24
	4 slots	25.5	25.5	25.5	22.49	22.49	22.49

Note: the duty cycle for 1 slot is 1/8, 2 slots is 1/4, 3 slots is 3/8, 4 slots is 1/2

The average power=Peak power+ duty cycle factor

Duty cycle factor=10*log (duty cycle)

NFC:

Mode	Frequency (MHz)	Maximum E-Field (dBuV/m@3m)	Maximum EIRP (dBm)	ERP		Evaluation Distance (cm)	ERP Limit (mW)
				(dBm)	(mW)		
NFC	13.56	71.68	-23.52	-25.67	0.0027	25	1173

Note: EIRP = E-Field – 95.2 @3m, ERP = EIRP-2.15

Simultaneous transmitting consideration (worst case):

The ratio= $ERP_{2.4G\ Wi-Fi}/limit + ERP_{GSM850}/limit + ERP_{NFC}/limit = 382.82/1200 + 252.93/659 + 0.0027/1173 = 0.703 < 1.0$

So simultaneous exposure is compliant.

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 25cm from nearby persons.

Result: Compliant.

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 (d) (h) - 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.

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

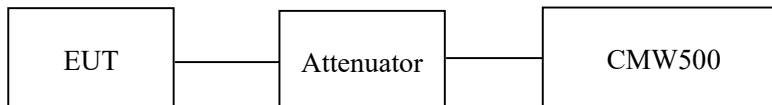
According to §27.50(d), Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

According to §27.50(h), the maximum EIRP must not exceed 2Watts (33dBm) for 2496-2690MHz.

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:	22~25 °C
Relative Humidity:	44~45 %
ATM Pressure:	101kPa

The testing was performed by Allen Bai from 2024-05-19 to 2024-05-29

Test Result: Compliant

Cellular Band (Part 22H)**GSM 850**

Test Mode	Conducted Peak Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
	Lowest Channel	Middle Channel	Highest Channel		
GSM	31.91	32.16	32.38	29.92	38.45
GPRS 1 Slot	32.47	32.69	32.71	30.25	38.45
GPRS 2 Slots	31.45	31.19	31.41	28.99	38.45
GPRS 3 Slots	28.72	28.95	29.26	26.80	38.45
GPRS 4 Slots	27.73	27.98	28.27	25.81	38.45
EDGE 1 Slot	26.66	26.32	26.49	24.20	38.45
EDGE 2 Slots	24.63	24.73	24.94	22.48	38.45
EDGE 3 Slots	23.51	23.69	23.90	21.44	38.45
EDGE 4 Slots	22.57	22.70	22.87	20.41	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	21.39	21.50	21.49	19.04	38.45
HSDPA Subtest 1	18.16	18.69	18.67	16.23	38.45
HSDPA Subtest 2	18.72	18.88	19.21	16.75	38.45
HSDPA Subtest 3	18.91	18.57	19.04	16.58	38.45
HSDPA Subtest 4	18.89	18.97	18.76	16.51	38.45
HSUPA Subtest 1	19.33	19.15	19.91	17.45	38.45
HSUPA Subtest 2	19.50	19.51	19.48	17.05	38.45
HSUPA Subtest 3	19.14	19.60	19.51	17.14	38.45
HSUPA Subtest 4	19.39	19.19	19.30	16.93	38.45
HSUPA Subtest 5	19.39	19.69	19.86	17.40	38.45
DC-HSDPA Subtest 1	19.64	20.12	19.95	17.66	38.45
DC-HSDPA Subtest 2	19.96	20.02	20.06	17.60	38.45
DC-HSDPA Subtest 3	19.76	19.60	19.78	17.32	38.45
DC-HSDPA Subtest 4	19.93	20.20	20.31	17.85	38.45
HSPA+ Subtest 1	19.24	19.56	19.84	17.38	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 Peak Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
	Lowest Channel	Middle Channel	Highest Channel		
GSM	28.95	29.02	29.34	29.65	33
GPRS 1 Slot	28.75	29.19	29.09	29.50	33
GPRS 2 Slots	27.82	28.25	28.23	28.56	33
GPRS 3 Slots	25.75	26.21	26.42	26.73	33
GPRS 4 Slots	24.53	25.01	25.05	25.36	33
EDGE 1 Slot	25.61	25.77	26.23	26.54	33
EDGE 2 Slots	24.95	24.99	25.51	25.82	33
EDGE 3 Slots	22.81	23.06	23.44	23.75	33
EDGE 4 Slots	22.12	22.22	22.70	23.01	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	21.27	22.29	22.17	22.60	33
HSDPA Subtest 1	19.34	19.65	19.42	19.96	33
HSDPA Subtest 2	19.94	19.47	19.88	20.25	33
HSDPA Subtest 3	19.49	19.66	19.96	20.27	33
HSDPA Subtest 4	19.51	19.58	19.63	19.94	33
HSUPA Subtest 1	19.16	19.43	19.16	19.74	33
HSUPA Subtest 2	19.32	19.41	19.74	20.05	33
HSUPA Subtest 3	19.43	19.78	19.34	20.09	33
HSUPA Subtest 4	19.48	19.14	19.38	19.79	33
HSUPA Subtest 5	19.37	19.36	19.35	19.68	33
DC-HSDPA Subtest 1	19.41	19.77	19.43	20.08	33
DC-HSDPA Subtest 2	19.74	19.62	19.91	20.22	33
DC-HSDPA Subtest 3	19.61	19.87	19.75	20.18	33
DC-HSDPA Subtest 4	19.66	19.66	19.96	20.27	33
HSPA+ Subtest 1	19.48	19.98	19.91	20.29	33
Note: EIRP=Conducted Power(dBm) - L _C (dB) + G _T (dBi)					

LTE 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	21.96	21.89	21.42	22.30	33
	RB1#3	21.99	21.60	21.44		
	RB1#5	21.98	21.57	21.35		
	RB3#0	21.78	21.60	21.41		
	RB3#3	21.69	21.54	21.44		
	RB6#0	20.77	20.64	20.60		
1.4MHz 16QAM	RB1#0	20.92	21.37	20.28	21.68	33
	RB1#3	21.14	21.35	20.24		
	RB1#5	20.87	21.30	20.13		
	RB3#0	20.72	20.86	20.72		
	RB3#3	20.50	20.81	20.60		
	RB6#0	19.77	20.04	19.74		
3MHz QPSK	RB1#0	21.67	21.59	21.45	21.98	33
	RB1#8	21.50	21.56	21.32		
	RB1#14	21.67	21.36	21.33		
	RB6#0	20.72	20.63	20.46		
	RB6#9	20.69	20.66	20.37		
	RB15#0	20.77	20.62	20.49		
3MHz 16QAM	RB1#0	21.32	20.99	20.26	21.63	33
	RB1#8	21.26	21.09	20.24		
	RB1#14	21.02	20.95	20.20		
	RB6#0	19.71	19.75	19.24		
	RB6#9	19.57	19.92	19.34		
	RB15#0	19.66	19.67	19.50		
5MHz QPSK	RB1#0	21.65	21.44	21.39	22.00	33
	RB1#13	21.69	21.27	21.41		
	RB1#24	21.54	21.21	21.08		
	RB15#0	20.73	20.64	20.47		
	RB15#10	20.67	20.64	20.43		
	RB25#0	20.64	20.66	20.40		
5MHz 16QAM	RB1#0	20.35	21.00	20.14	21.57	33
	RB1#13	20.39	21.26	20.51		
	RB1#24	19.83	20.77	20.13		
	RB15#0	19.73	19.79	19.50		
	RB15#10	19.53	19.83	19.48		
	RB25#0	19.73	19.64	19.50		

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
10MHz QPSK	RB1#0	21.65	21.64	21.45	22.11	33
	RB1#25	21.57	21.53	21.80		
	RB1#49	21.64	21.55	21.48		
	RB25#0	20.70	20.63	20.41		
	RB25#25	20.47	20.58	20.43		
	RB50#0	20.54	20.56	20.55		
10MHz 16QAM	RB1#0	21.14	21.32	20.41	22.12	33
	RB1#25	20.86	21.81	21.39		
	RB1#49	20.96	21.27	20.30		
	RB25#0	19.75	19.85	19.62		
	RB25#25	19.53	19.78	19.82		
	RB50#0	19.66	19.55	19.48		
15MHz QPSK	RB1#0	21.57	21.78	21.40	22.09	33
	RB1#38	21.38	21.67	21.37		
	RB1#74	21.52	21.55	21.34		
	RB36#0	20.61	20.58	20.52		
	RB36#39	20.63	20.62	20.47		
	RB75#0	20.50	20.60	20.49		
15MHz 16QAM	RB1#0	21.27	21.35	20.81	22.01	33
	RB1#38	21.70	21.66	20.69		
	RB1#74	21.03	21.29	20.18		
	RB36#0	19.63	19.60	19.32		
	RB36#39	19.66	19.64	19.56		
	RB75#0	19.66	19.69	19.50		
20MHz QPSK	RB1#0	21.59	21.63	21.75	22.20	33
	RB1#50	21.85	21.89	21.60		
	RB1#99	21.44	21.59	21.37		
	RB50#0	20.51	20.60	20.49		
	RB50#50	20.57	20.56	20.47		
	RB100#0	20.54	20.60	20.48		
20MHz 16QAM	RB1#0	20.87	20.77	21.35	22.37	33
	RB1#50	21.49	20.70	22.06		
	RB1#99	20.73	20.51	21.99		
	RB50#0	19.60	19.50	19.38		
	RB50#50	19.59	19.57	19.49		
	RB100#0	19.63	19.62	19.46		

Note: EIRP=Conducted Power(dBm) - L_C(dB) + G_T(dBi)

LTE Band 4

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	21.06	21.17	21.05	20.30	30
	RB1#3	21.06	21.23	20.91		
	RB1#5	21.08	21.18	20.80		
	RB3#0	21.10	21.16	20.76		
	RB3#3	21.06	21.16	20.90		
	RB6#0	19.93	20.04	20.05		
1.4MHz 16QAM	RB1#0	20.09	20.74	19.99	19.91	30
	RB1#3	20.14	20.84	20.09		
	RB1#5	20.08	20.77	19.82		
	RB3#0	19.97	20.36	19.94		
	RB3#3	20.00	20.29	20.07		
	RB6#0	18.78	19.09	18.90		
3MHz QPSK	RB1#0	20.89	20.91	20.94	20.01	30
	RB1#8	20.90	20.81	20.83		
	RB1#14	20.80	20.88	20.93		
	RB6#0	19.86	20.17	19.86		
	RB6#9	19.89	20.14	20.00		
	RB15#0	19.88	20.04	19.97		
3MHz 16QAM	RB1#0	20.37	20.38	20.30	19.48	30
	RB1#8	20.37	20.41	20.36		
	RB1#14	20.20	20.37	20.26		
	RB6#0	18.93	19.33	18.96		
	RB6#9	18.84	19.42	19.02		
	RB15#0	18.84	19.33	19.20		
5MHz QPSK	RB1#0	20.66	20.86	20.72	19.97	30
	RB1#13	20.69	20.90	20.84		
	RB1#24	20.79	20.90	20.83		
	RB15#0	19.87	20.07	19.98		
	RB15#10	19.91	20.05	20.06		
	RB25#0	19.83	19.98	19.97		
5MHz 16QAM	RB1#0	19.79	20.30	19.68	19.84	30
	RB1#13	19.51	20.77	19.67		
	RB1#24	19.41	20.44	18.87		
	RB15#0	19.11	19.05	19.08		
	RB15#10	19.13	19.05	18.90		
	RB25#0	18.89	18.89	19.01		

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
10MHz QPSK	RB1#0	20.86	21.06	20.84	20.21	30
	RB1#25	20.88	21.02	21.14		
	RB1#49	20.79	20.62	21.00		
	RB25#0	19.94	20.01	19.85		
	RB25#25	19.84	19.93	19.95		
	RB50#0	19.89	20.08	19.99		
10MHz 16QAM	RB1#0	20.31	20.67	19.82	20.36	30
	RB1#25	20.16	21.29	19.80		
	RB1#49	20.24	20.48	19.91		
	RB25#0	19.05	19.13	19.17		
	RB25#25	18.79	19.16	19.02		
	RB50#0	18.90	19.09	18.98		
15MHz QPSK	RB1#0	21.01	20.90	20.99	20.08	30
	RB1#38	20.87	20.88	20.81		
	RB1#74	20.94	20.78	20.90		
	RB36#0	19.90	20.11	19.84		
	RB36#39	19.93	19.96	19.89		
	RB75#0	19.92	20.13	19.82		
15MHz 16QAM	RB1#0	20.62	20.14	20.60	19.78	30
	RB1#38	20.53	20.02	20.38		
	RB1#74	20.71	19.56	20.51		
	RB36#0	18.90	19.13	18.96		
	RB36#39	18.86	18.96	18.94		
	RB75#0	19.19	18.93	18.86		
20MHz QPSK	RB1#0	20.84	21.20	21.29	20.36	30
	RB1#50	21.16	21.28	20.96		
	RB1#99	20.83	20.96	20.75		
	RB50#0	19.95	19.98	19.95		
	RB50#50	20.05	19.82	19.70		
	RB100#0	20.06	19.84	19.87		
20MHz 16QAM	RB1#0	20.06	20.12	20.94	20.40	30
	RB1#50	20.83	20.02	21.33		
	RB1#99	19.85	19.46	20.73		
	RB50#0	18.93	19.01	18.95		
	RB50#50	19.06	18.84	18.77		
	RB100#0	19.00	18.83	18.92		
Note: EIRP=Conducted Power(dBm) - L _c (dB) + G _T (dBi)						

LTE 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	19.93	20.43	20.61	24.15	33
	RB1#13	20.22	20.47	20.48		
	RB1#24	19.90	20.33	20.42		
	RB15#0	19.22	19.72	19.73		
	RB15#10	19.21	19.72	19.60		
	RB25#0	19.18	19.67	19.61		
5MHz 16QAM	RB1#0	19.48	19.31	19.15	23.34	33
	RB1#13	19.80	19.33	19.36		
	RB1#24	19.49	19.42	18.77		
	RB15#0	17.98	18.66	18.69		
	RB15#10	18.11	18.67	18.71		
	RB25#0	18.08	18.62	19.02		
10MHz QPSK	RB1#0	20.38	20.85	20.83	24.65	33
	RB1#25	20.38	21.06	21.11		
	RB1#49	20.32	20.75	20.62		
	RB25#0	19.29	19.86	19.76		
	RB25#25	19.30	19.78	19.71		
	RB50#0	19.30	19.87	19.70		
10MHz 16QAM	RB1#0	19.82	20.57	19.64	24.54	33
	RB1#25	20.05	21.00	19.67		
	RB1#49	19.75	20.51	19.60		
	RB25#0	18.34	18.97	18.98		
	RB25#25	18.25	18.88	18.75		
	RB50#0	18.19	18.76	18.78		
15MHz QPSK	RB1#0	20.17	20.77	20.79	24.33	33
	RB1#38	20.18	20.77	20.52		
	RB1#74	20.40	20.66	20.50		
	RB36#0	19.43	19.83	19.70		
	RB36#39	19.35	19.85	19.74		
	RB75#0	19.34	19.85	19.64		
15MHz 16QAM	RB1#0	19.37	20.37	19.90	24.45	33
	RB1#38	19.38	20.91	20.73		
	RB1#74	19.07	19.35	20.37		
	RB36#0	18.38	18.64	18.55		
	RB36#39	18.22	18.65	18.71		
	RB75#0	18.21	18.76	18.71		

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
20MHz QPSK	RB1#0	20.12	20.94	20.61	24.68	33
	RB1#50	20.62	21.14	21.07		
	RB1#99	20.39	20.66	20.43		
	RB50#0	19.33	19.82	19.72		
	RB50#50	19.36	19.81	19.83		
	RB100#0	19.32	19.82	19.73		
20MHz 16QAM	RB1#0	19.47	20.03	20.46	24.72	33
	RB1#50	19.70	19.95	21.18		
	RB1#99	20.11	19.65	20.47		
	RB50#0	18.30	18.95	18.53		
	RB50#50	18.41	18.82	18.78		
	RB100#0	18.32	18.84	18.77		
Note: EIRP=Conducted Power(dBm) - L _c (dB) + G _T (dBi)						

LTE Band 38

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	20.08	19.67	19.77	23.15	33
	RB1#13	19.68	19.65	19.78		
	RB1#24	19.37	19.75	19.87		
	RB15#0	18.89	19.04	19.15		
	RB15#10	18.66	18.91	19.31		
	RB25#0	18.70	18.99	19.09		
5MHz 16QAM	RB1#0	19.38	18.65	19.50	22.69	33
	RB1#13	19.18	18.36	19.39		
	RB1#24	18.86	18.34	19.62		
	RB15#0	18.02	17.83	18.24		
	RB15#10	17.70	17.84	18.28		
	RB25#0	17.68	18.02	18.19		
10MHz QPSK	RB1#0	20.27	20.11	19.91	23.34	33
	RB1#25	19.51	20.18	20.04		
	RB1#49	19.86	20.04	20.11		
	RB25#0	18.81	19.11	19.11		
	RB25#25	18.76	18.95	19.30		
	RB50#0	18.79	19.06	19.24		
10MHz 16QAM	RB1#0	18.73	19.64	19.57	23.02	33
	RB1#25	18.60	19.68	19.95		
	RB1#49	18.60	19.62	19.77		
	RB25#0	17.80	18.11	18.35		
	RB25#25	17.83	18.08	18.49		
	RB50#0	17.85	18.18	18.22		
15MHz QPSK	RB1#0	20.23	20.09	20.16	23.46	33
	RB1#38	19.81	20.09	20.13		
	RB1#74	19.90	20.03	20.39		
	RB36#0	18.80	19.10	19.07		
	RB36#39	18.98	19.05	19.23		
	RB75#0	18.82	19.07	19.13		
15MHz 16QAM	RB1#0	19.34	18.74	19.57	22.89	33
	RB1#38	18.81	18.98	19.59		
	RB1#74	18.97	18.73	19.82		
	RB36#0	18.02	18.04	18.19		
	RB36#39	18.18	18.01	18.37		
	RB75#0	17.94	18.08	18.25		

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum EIRP (dBm)	EIRP Limit (dBm)
		Lowest Channel	Middle Channel	Highest Channel		
20MHz QPSK	RB1#0	20.07	20.26	19.80	23.33	33
	RB1#50	20.04	20.18	20.02		
	RB1#99	19.95	20.06	19.95		
	RB50#0	18.82	19.08	19.07		
	RB50#50	18.90	19.04	19.19		
	RB100#0	18.92	19.06	19.08		
20MHz 16QAM	RB1#0	18.86	19.63	19.62	22.86	33
	RB1#50	18.73	19.79	19.41		
	RB1#99	18.70	19.51	19.66		
	RB50#0	17.95	18.26	18.29		
	RB50#50	18.12	18.23	18.35		
	RB100#0	17.88	18.07	18.24		
Note: EIRP=Conducted Power(dBm) - L _C (dB) + G _T (dBi)						

Peak-to-average ratio (PAR)**Cellular Band****GSM 850**

Test Mode	Peak-to-average Ratio(dB)			Limit (dB)
	Lowest Channel	Middle Channel	Highest Channel	
GSM	2.12	3.03	2.93	13
EDGE	2.72	2.38	2.18	13

WCAMA B5

Test Mode	Peak-to-average Ratio(dB)			Limit (dB)
	Lowest Channel	Middle Channel	Highest Channel	
WCDMA R99	3.11	3.27	3.11	13
HSDPA	4.71	5.26	5.03	13
HSUPA	5.96	5.03	5.77	13

PCS Band**PCS1900**

Test Mode	Peak-to-average Ratio(dB)			Limit (dB)
	Lowest Channel	Middle Channel	Highest Channel	
GSM	2.97	2.43	2.34	13
EDGE	2.54	2.41	2.58	13

WCDMA B2

Test Mode	Peak-to-average Ratio(dB)			Limit (dB)
	Lowest Channel	Middle Channel	Highest Channel	
WCDMA R99	3.21	3.14	3.11	13
HSDPA	5.96	4.84	4.42	13
HSUPA	6.25	5.93	5.9	13

LTE Band: (pre-scan all bandwidth, the worst case as below)

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	2.15	1.79	2.05	13
	RB100#0	6.41	6.44	6.51	13
20MHz 16QAM	RB1#0	2.12	1.70	2.02	13
	RB100#0	7.24	7.21	7.24	13

LTE Band 4 10MHz 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	2.21	2.12	2.15	13
	RB100#0	6.44	6.51	6.38	13
20MHz 16QAM	RB1#0	2.21	2.18	2.21	13
	RB100#0	7.21	7.24	7.18	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	2.47	2.31	2.53	13
	RB100#0	6.44	6.47	6.41	13
20MHz 16QAM	RB1#0	2.44	2.34	2.50	13
	RB100#0	7.24	7.31	7.18	13

LTE Band 38 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	11.19	4.68	6.25	13
	RB100#0	11.83	10.54	11.85	13
20MHz 16QAM	RB1#0	11.83	4.39	4.36	13
	RB100#0	11.66	11.43	9.90	13

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

Applicable Standard

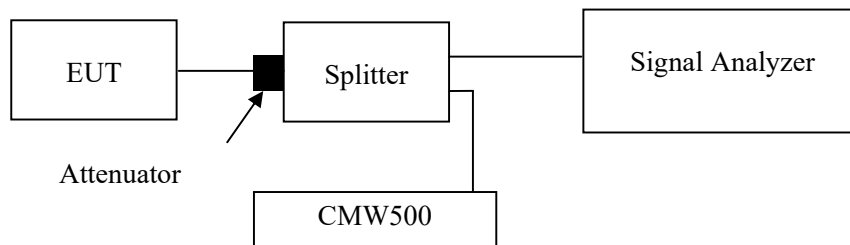
FCC 47 §2.1049, §22.917, §22.905, §24.238 and §27.53.

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:	22~25 °C
Relative Humidity:	44~45 %
ATM Pressure:	101kPa

The testing was performed by Allen Bai from 2024-05-19 to 2024-05-29

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)
	Middle channel	Middle Channel
GSM	0.243	0.313
EDGE	0.242	0.317

WCAMA B5

Operation Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
	Middle channel	Middle Channel
WCDMA R99	4.11	4.71
HSDPA	4.13	4.74
HSUPA	4.11	4.73

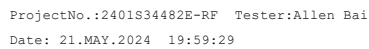
PCS Band (Part 24E)**PCS 1900**

Operation Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
	Middle channel	Middle Channel
GSM	0.246	0.317
EDGE	0.240	0.312

WCDMA B2

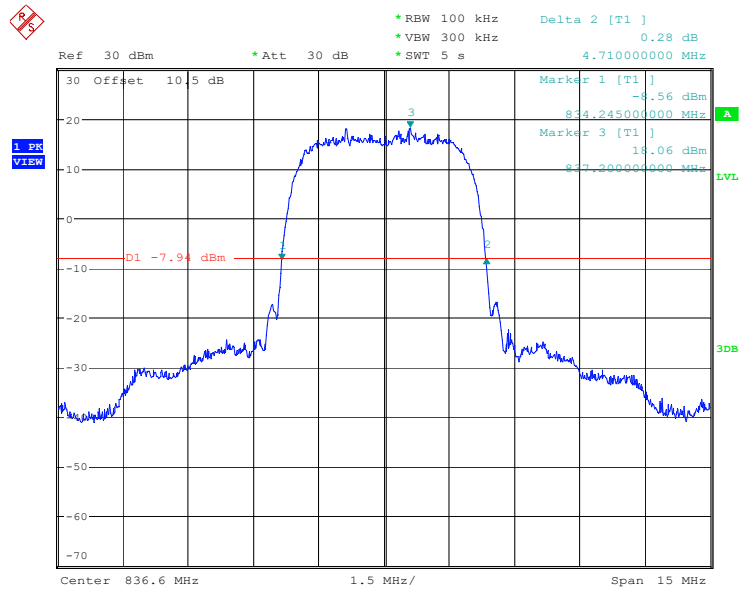
Operation Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
	Middle channel	Middle Channel
WCDMA R99	4.11	4.71
HSDPA	4.13	4.73
HSUPA	4.11	4.76

GSM(GMSK) Mode, Middle channel



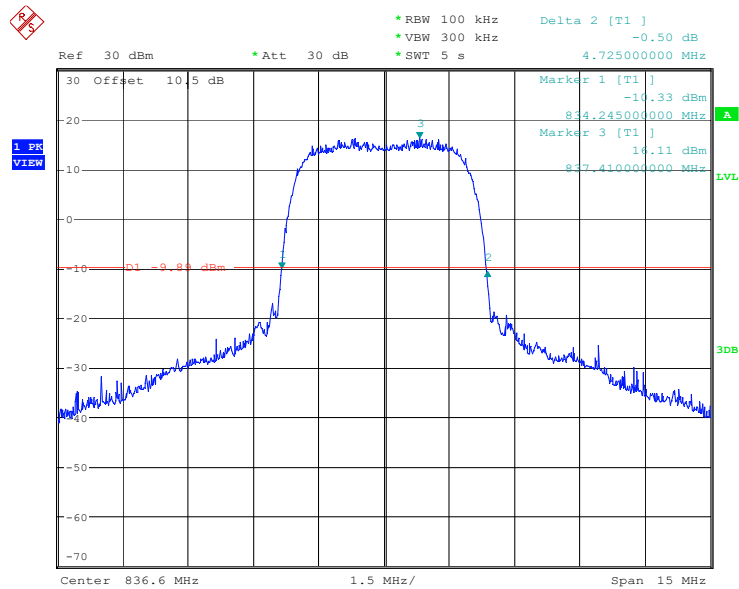
ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 00:26:16

RMC (BPSK) Mode, Middle channel



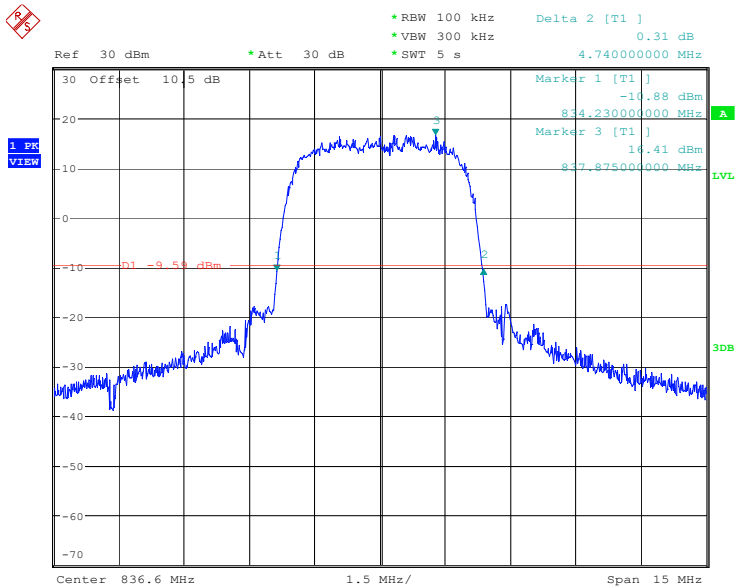
ProjectNo.:2401S34482E-RF Tester:Allen Bai
 Date: 29.MAY.2024 03:17:18

HSUPA (QPSK) Mode, Middle channel



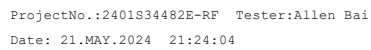
ProjectNo.:2401S34482E-RF Tester:Allen Bai
 Date: 29.MAY.2024 03:25:39

HSDPA (16QAM) Mode, Middle channel



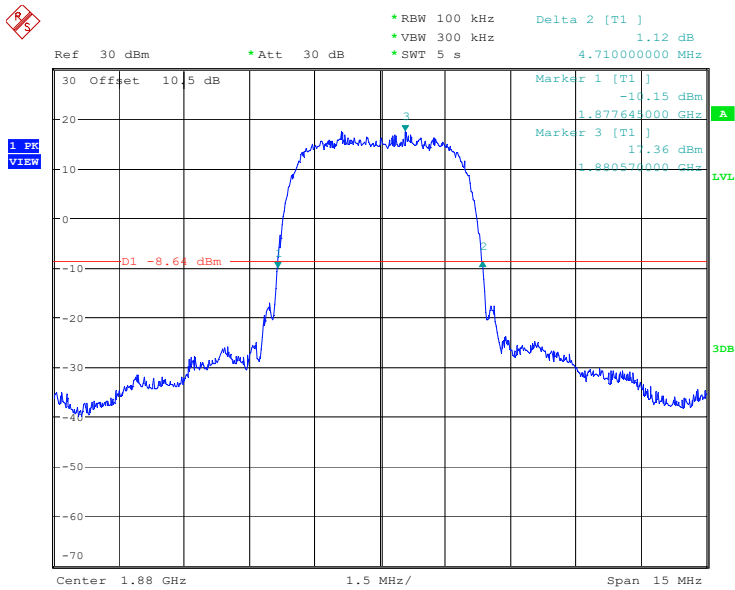
ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 29.MAY.2024 03:20:49

GSM(GMSK) Mode, Middle channel



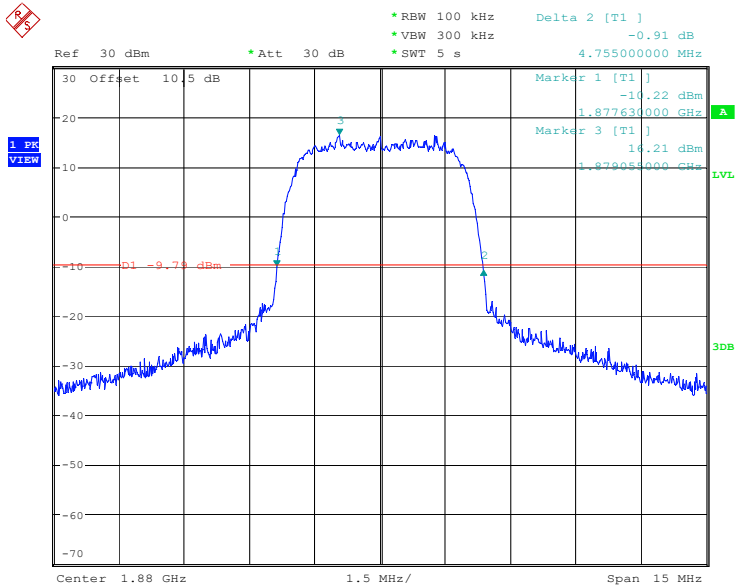
ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 23:25:36

RMC (BPSK) Mode, Middle channel



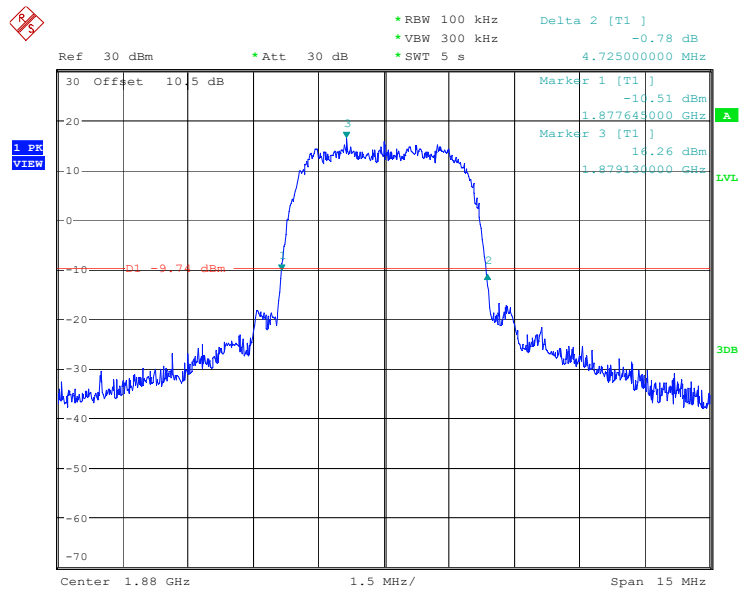
ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 23:54:57

HSUPA (QPSK) Mode, Middle channel



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 23.MAY.2024 00:22:29

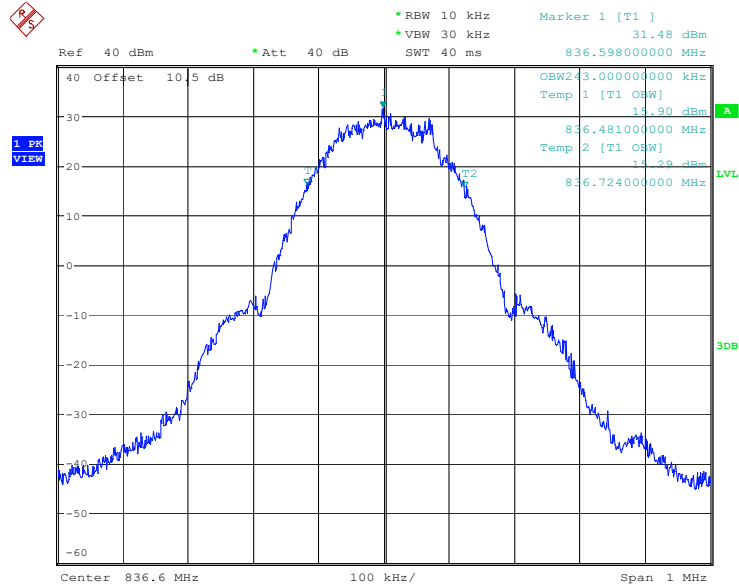
HSDPA (16QAM) Mode, Middle channel



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 23.MAY.2024 00:09:49

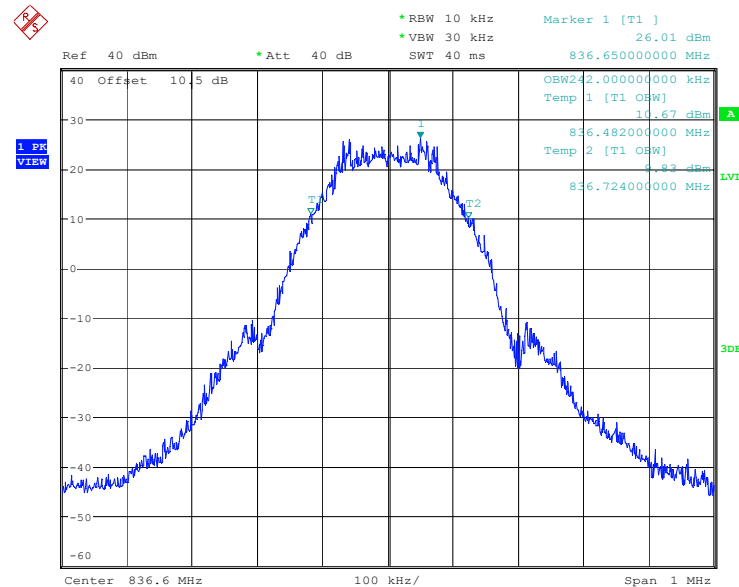
99% Occupied Bandwidth Cellular Band

GSM(GMSK) Mode, Middle channel



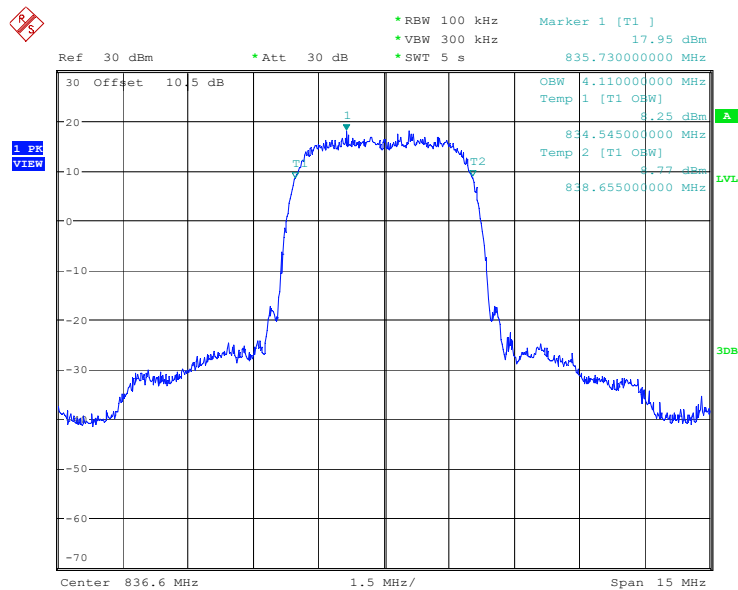
ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 21.MAY.2024 19:58:48

EDGE(8PSK) Mode, Middle channel



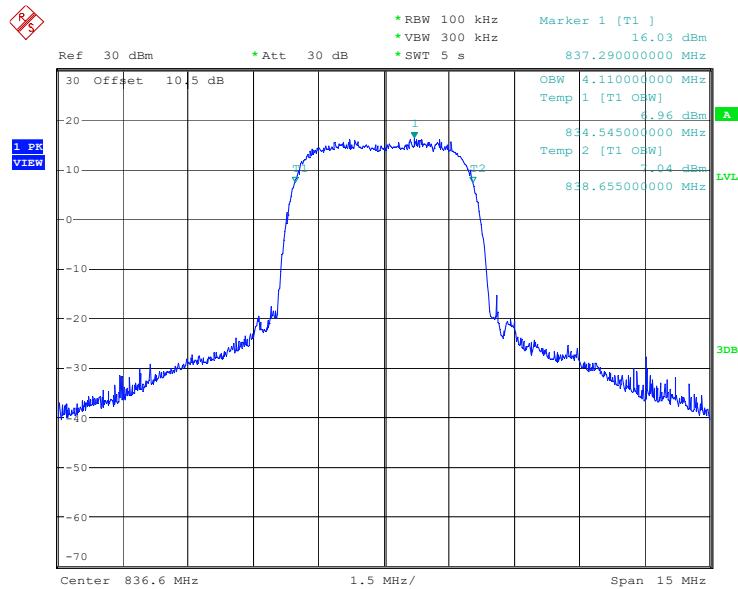
ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 00:25:49

RMC (BPSK) Mode, Middle channel



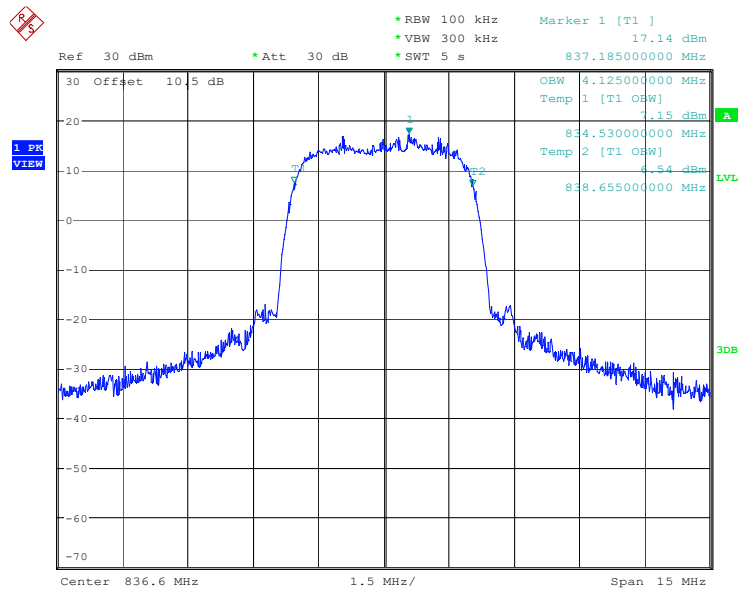
ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 29.MAY.2024 03:16:52

HSUPA (QPSK) Mode, Middle channel



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 29.MAY.2024 03:24:42

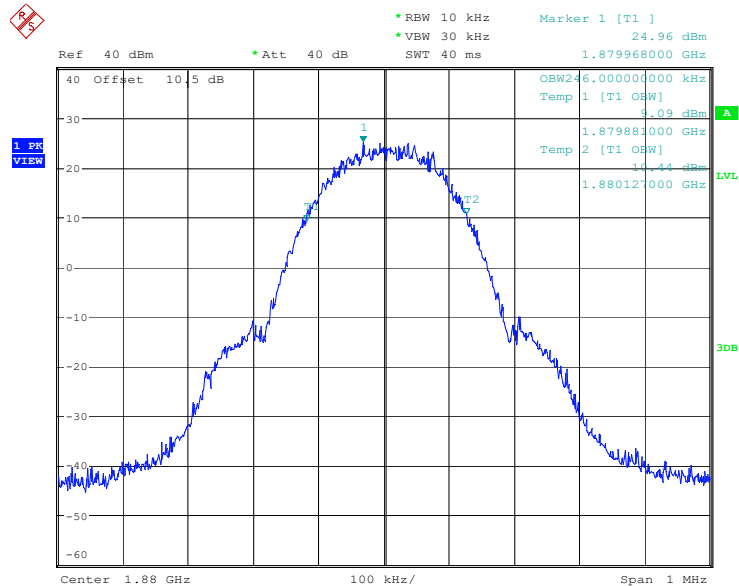
HSDPA (16QAM) Mode, Middle channel



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 29.MAY.2024 03:20:12

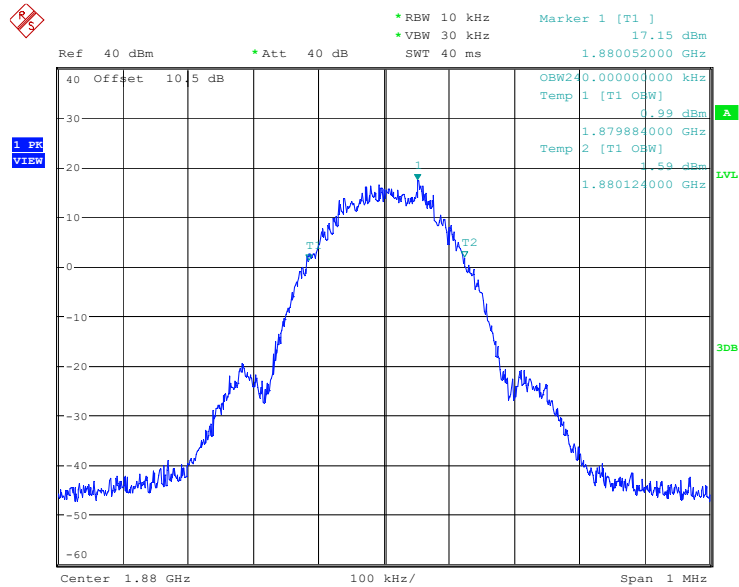
PCS Band

GSM(GMSK) Mode, Middle channel



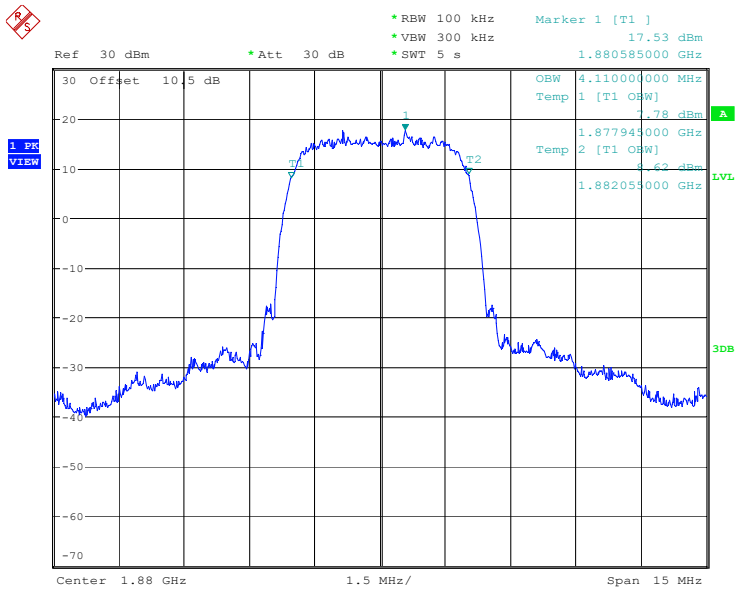
ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 21.MAY.2024 21:23:23

EDGE(8PSK) Mode, Middle channel



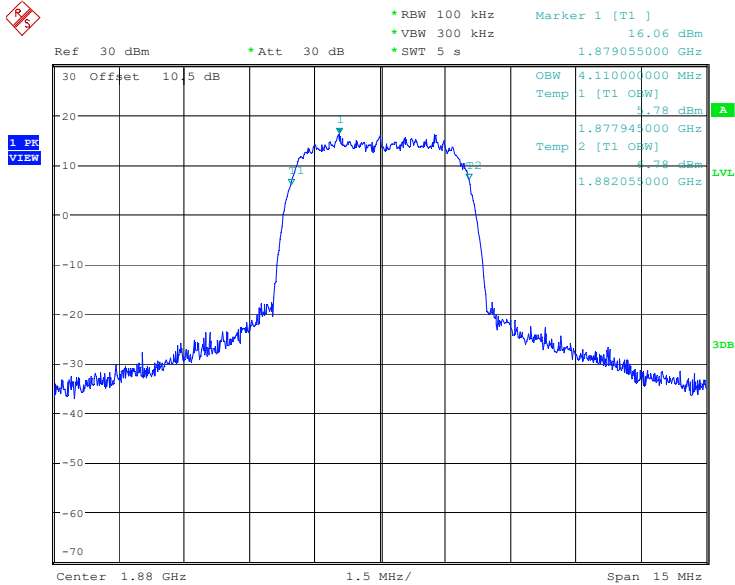
ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 23:25:12

RMC (BPSK) Mode, Middle channel



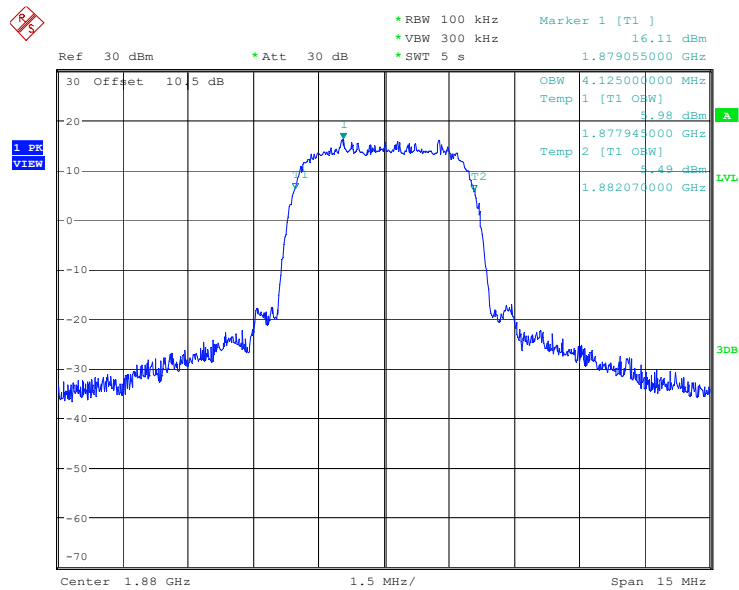
ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 23:54:31

HSUPA (QPSK) Mode, Middle channel



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 23.MAY.2024 00:21:33

HSDPA (16QAM) Mode, Middle channel



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 23.MAY.2024 00:09:24

LTE Band 2

Operation Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
	Middle channel	Middle Channel
1.4MHz QPSK	1.104	1.320
1.4MHz 16QAM	1.104	1.296
3MHz QPSK	2.700	2.940
3MHz 16QAM	2.700	2.952
5MHz QPSK	4.520	5.020
5MHz 16QAM	4.520	5.040
10MHz QPSK	8.920	9.680
10MHz 16QAM	8.920	9.640
15MHz QPSK	13.440	14.700
15MHz 16QAM	13.440	14.760
20MHz QPSK	17.920	19.280
20MHz 16QAM	17.840	19.360

LTE Band 4

Operation Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
	Middle channel	Middle Channel
1.4MHz QPSK	1.104	1.302
1.4MHz 16QAM	1.104	1.284
3MHz QPSK	2.700	2.940
3MHz 16QAM	2.700	2.940
5MHz QPSK	4.520	5.040
5MHz 16QAM	4.520	5.040
10MHz QPSK	8.960	9.680
10MHz 16QAM	8.960	9.720
15MHz QPSK	13.500	14.880
15MHz 16QAM	13.500	14.880
20MHz QPSK	18.000	19.360
20MHz 16QAM	17.920	19.520

LTE Band 7

Operation Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
	Middle channel	Middle Channel
5MHz QPSK	4.500	5.000
5MHz 16QAM	4.540	5.040
10MHz QPSK	8.960	9.720
10MHz 16QAM	8.960	9.680
15MHz QPSK	13.520	14.820
15MHz 16QAM	13.500	14.760
20MHz QPSK	17.920	19.360
20MHz 16QAM	17.920	19.440

LTE Band 38

Operation Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
	Middle channel	Middle Channel
5MHz QPSK	4.500	5.000
5MHz 16QAM	4.500	4.980
10MHz QPSK	9.000	10.000
10MHz 16QAM	8.920	9.640
15MHz QPSK	13.440	15.180
15MHz 16QAM	13.500	15.420
20MHz QPSK	17.920	19.360
20MHz 16QAM	17.920	19.440

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

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

Applicable Standard

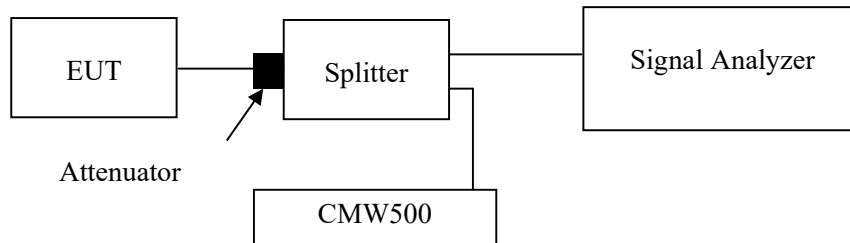
FCC §2.1051, §22.917(a) & §24.238(a) & §27.53.

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 10th 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:	22~25 °C
Relative Humidity:	44~45 %
ATM Pressure:	101kPa

The testing was performed by Allen Bai from 2024-05-19 to 2024-05-29

EUT operation mode: Transmitting

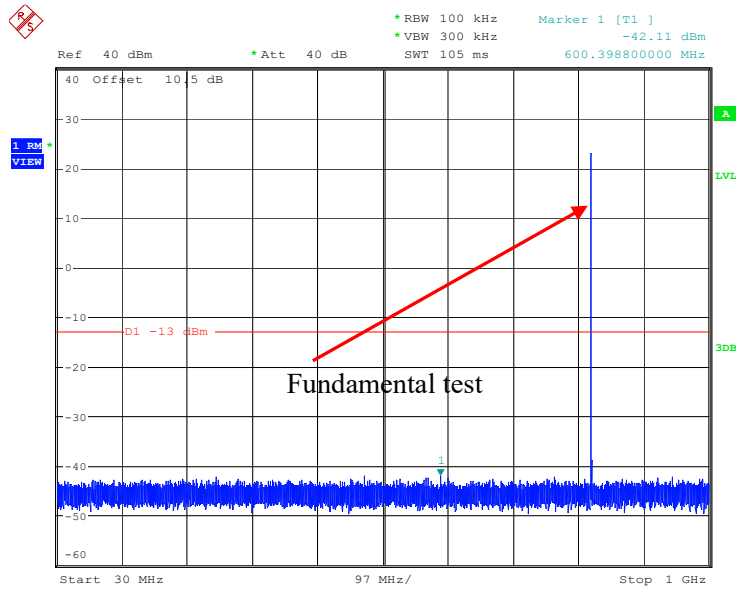
Test result: Compliant

Please refer to the following plots.

Cellular Band

Low Channel:

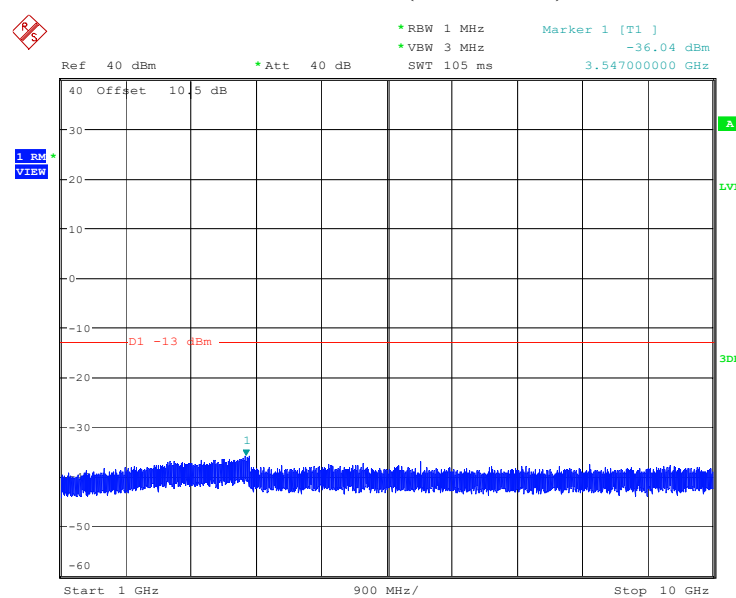
30 MHz – 1GHz (GSM Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai

Date: 21.MAY.2024 19:43:43

1 – 10GHz (GSM Mode)

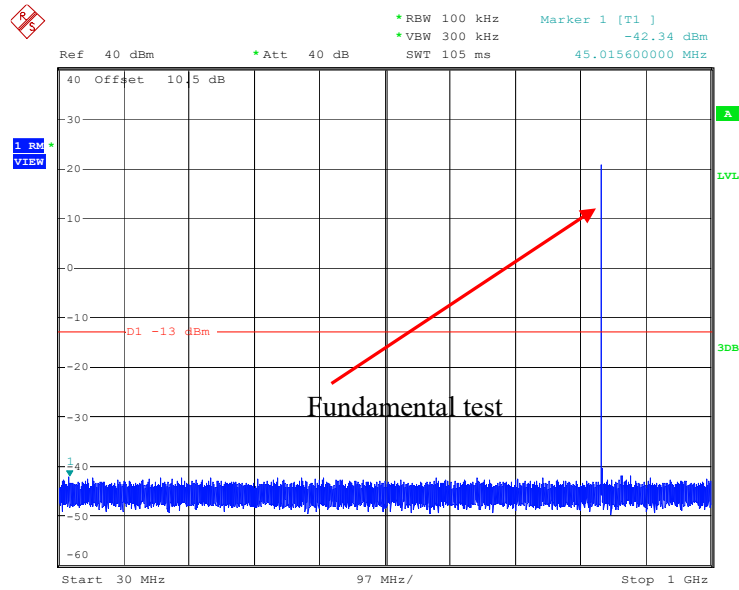


ProjectNo.:2401S34482E-RF Tester:Allen Bai

Date: 21.MAY.2024 20:06:32

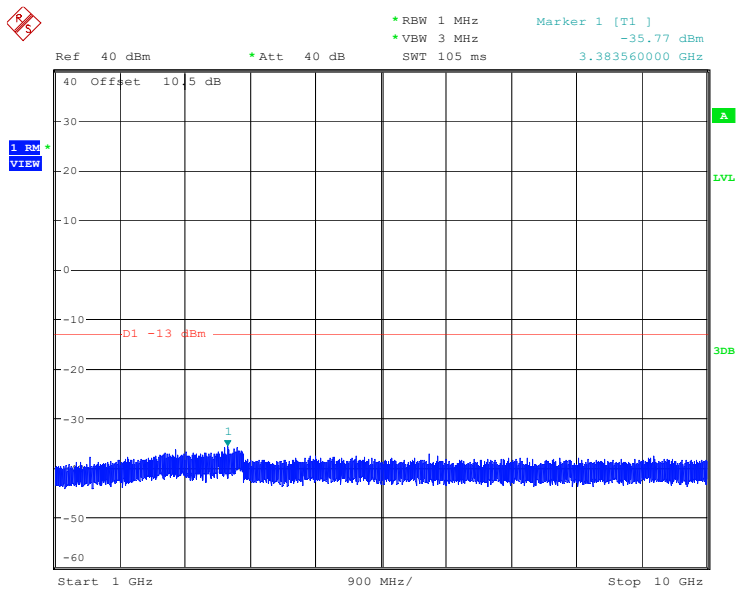
Middle Channel:

30 MHz – 1GHz (GSM Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 21.MAY.2024 19:59:58

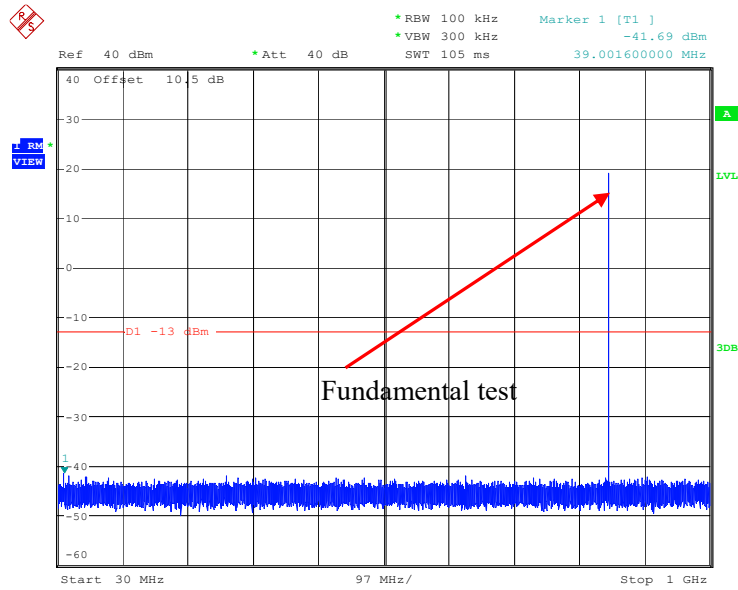
1 – 10GHz (GSM Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 21.MAY.2024 20:51:38

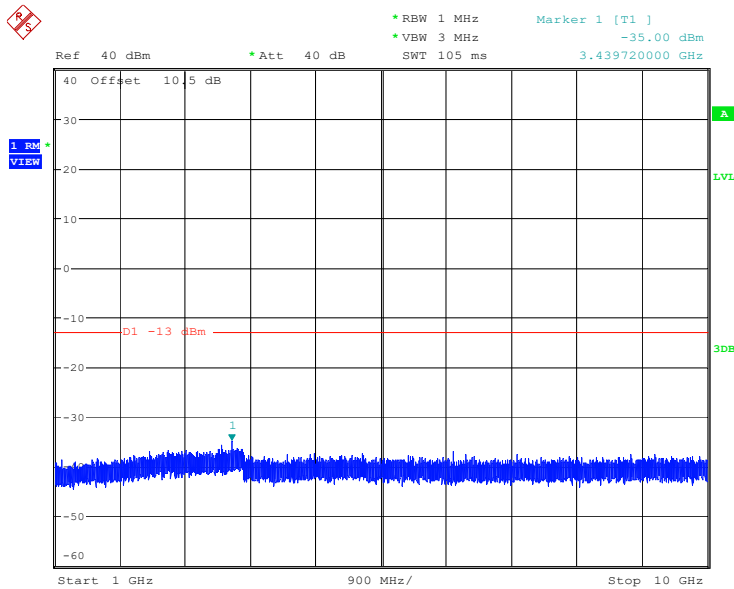
High Channel:

30 MHz – 1GHz (GSM Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 21.MAY.2024 20:32:12

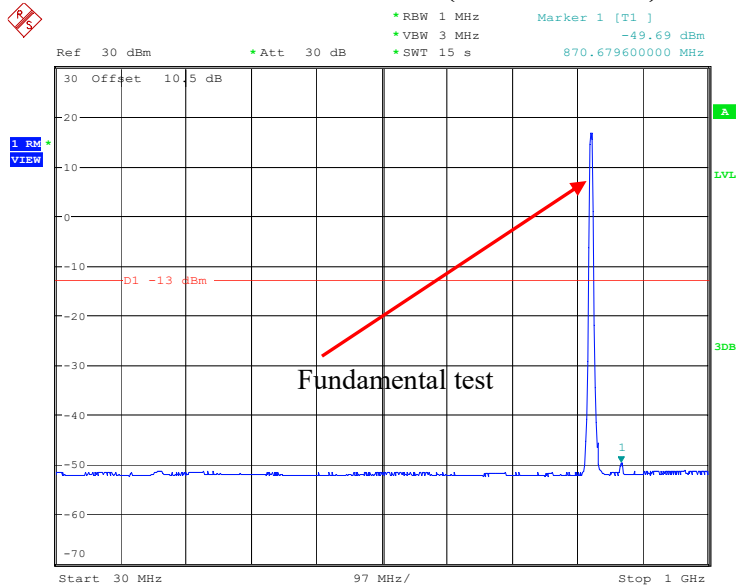
1 – 10GHz (GSM Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 21.MAY.2024 20:33:53

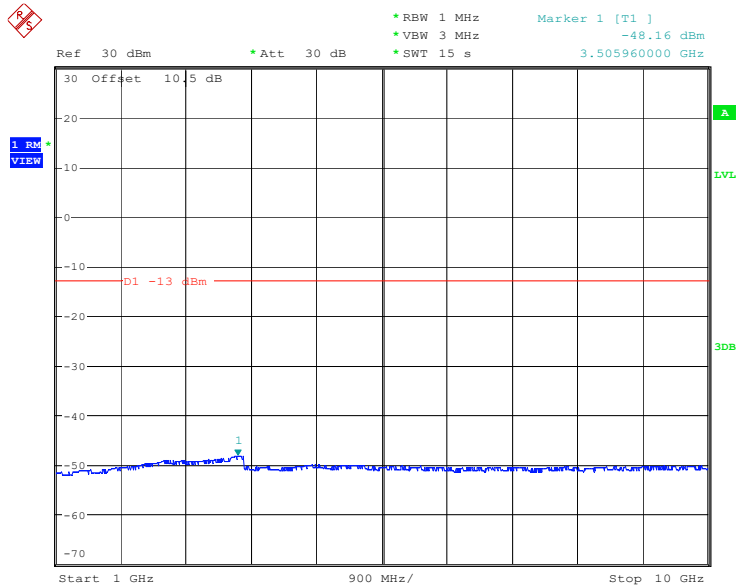
Low Channel:

30 MHz – 1GHz RMC (WCDMA Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 02:28:52

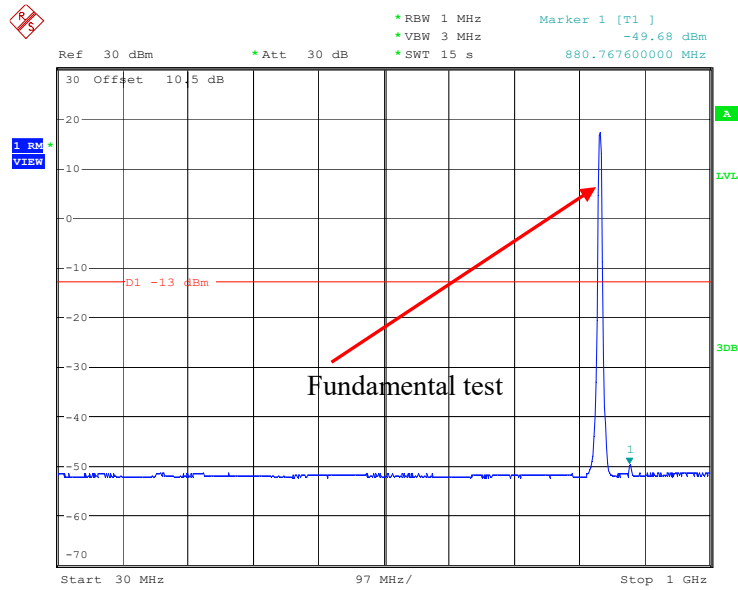
1 – 10GHz RMC (WCDMA Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 02:27:15

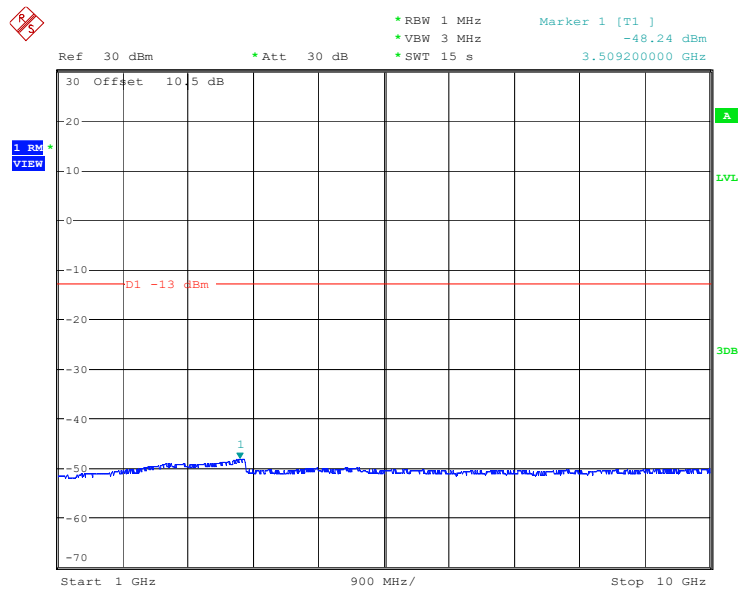
Middle Channel:

30 MHz – 1GHz RMC (WCDMA Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 29.MAY.2024 03:17:55

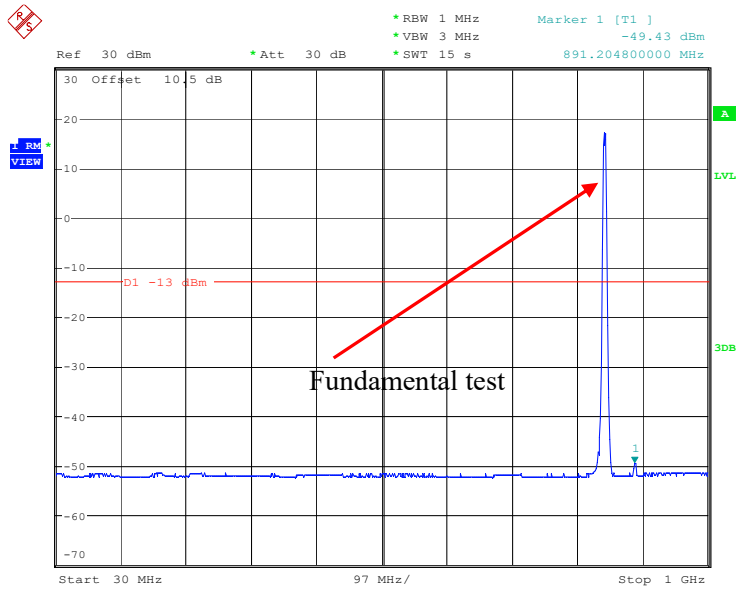
1 – 10GHz RMC (WCDMA Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 29.MAY.2024 03:18:23

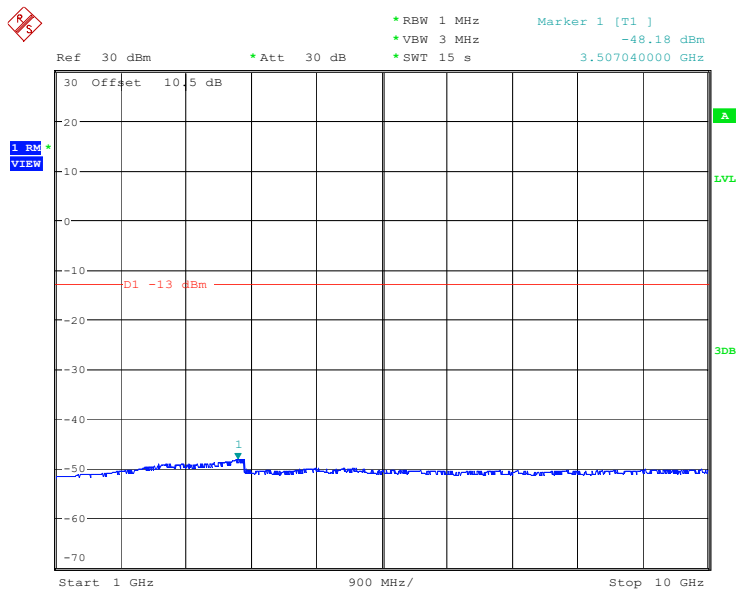
High Channel:

30 MHz – 1GHz RMC (WCDMA Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 02:34:54

1 – 10GHz RMC (WCDMA Mode)

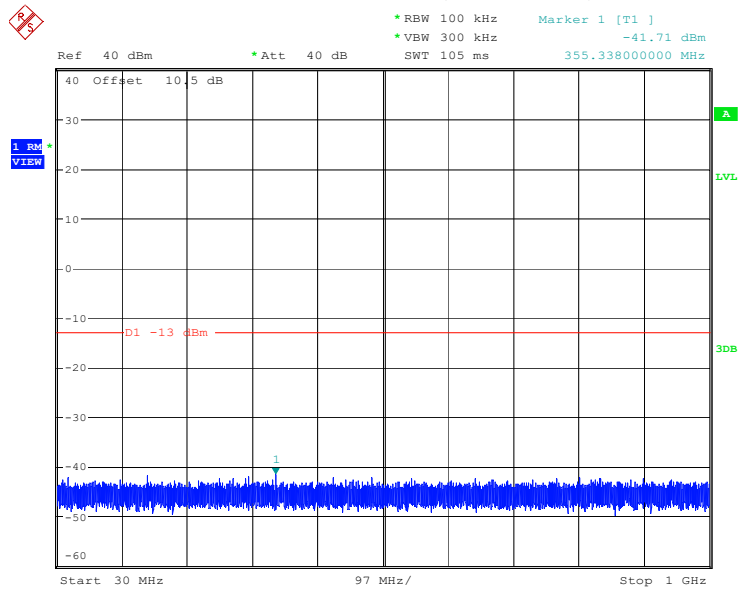


ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 02:35:23

PCS Band

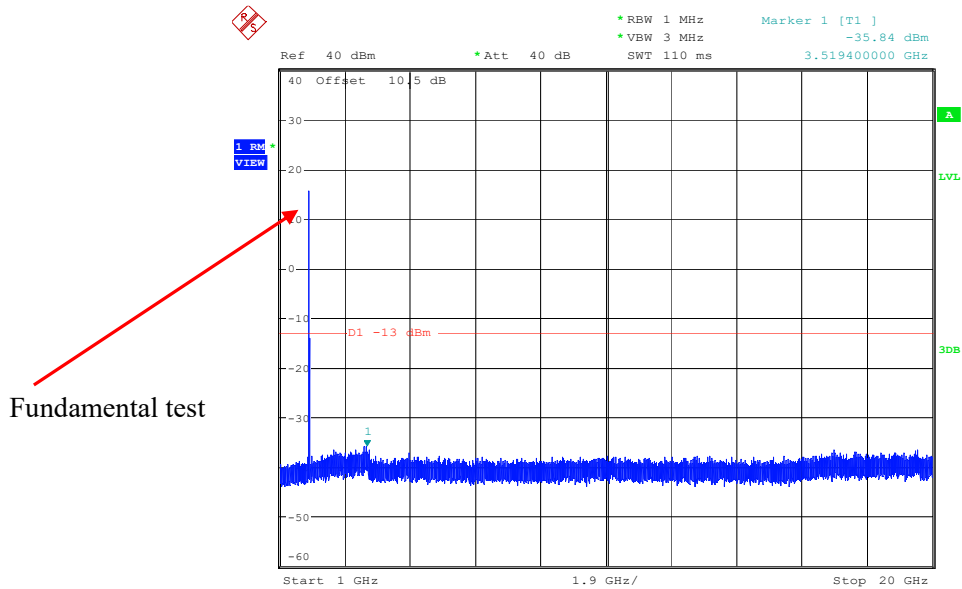
Low Channel:

30 MHz – 1GHz (GSM Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 21.MAY.2024 21:15:24

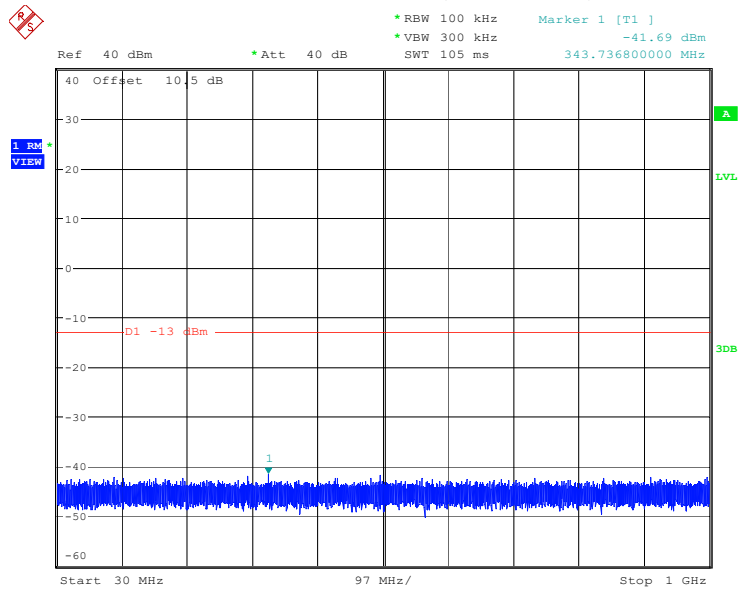
1GHz – 20GHz (GSM Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 21.MAY.2024 21:29:38

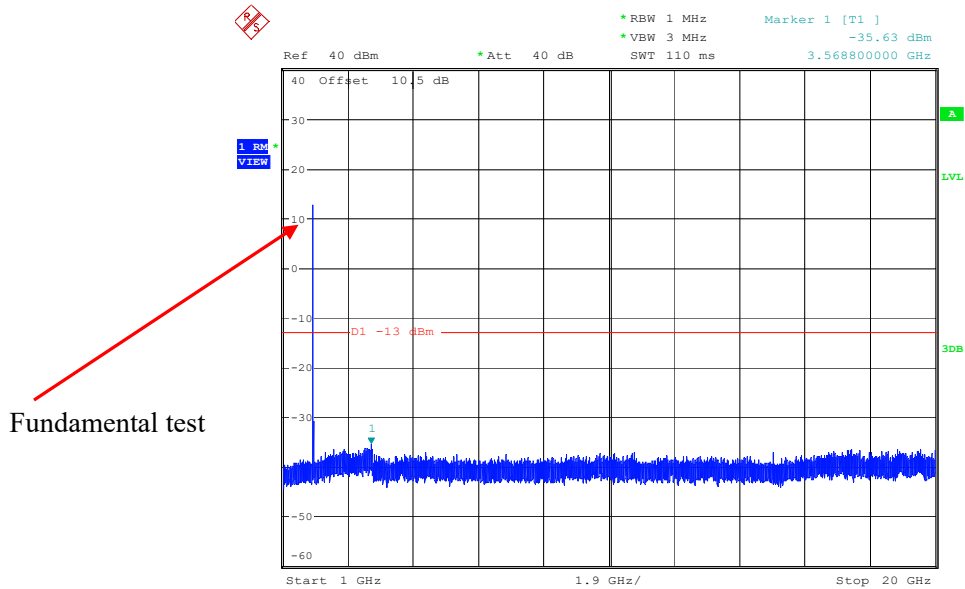
Middle Channel:

30 MHz – 1GHz (GSM Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 21.MAY.2024 21:24:43

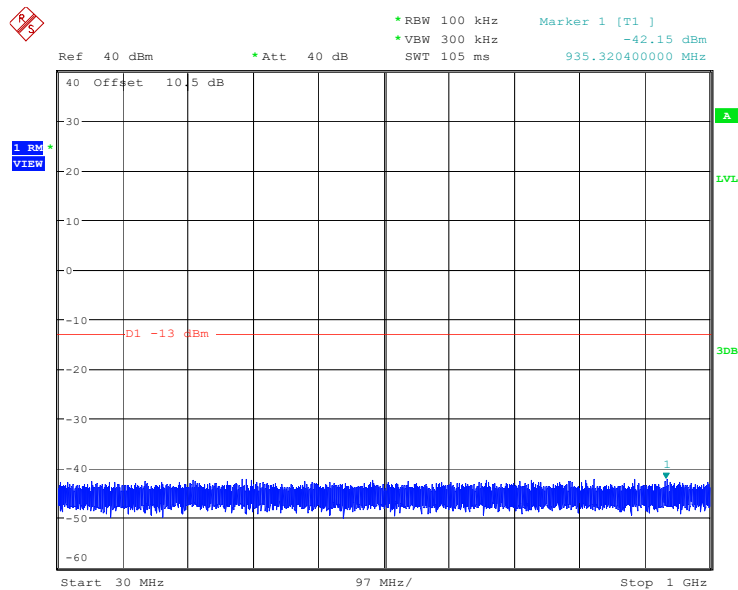
1 GHz – 20GHz (GSM Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 21.MAY.2024 21:27:17

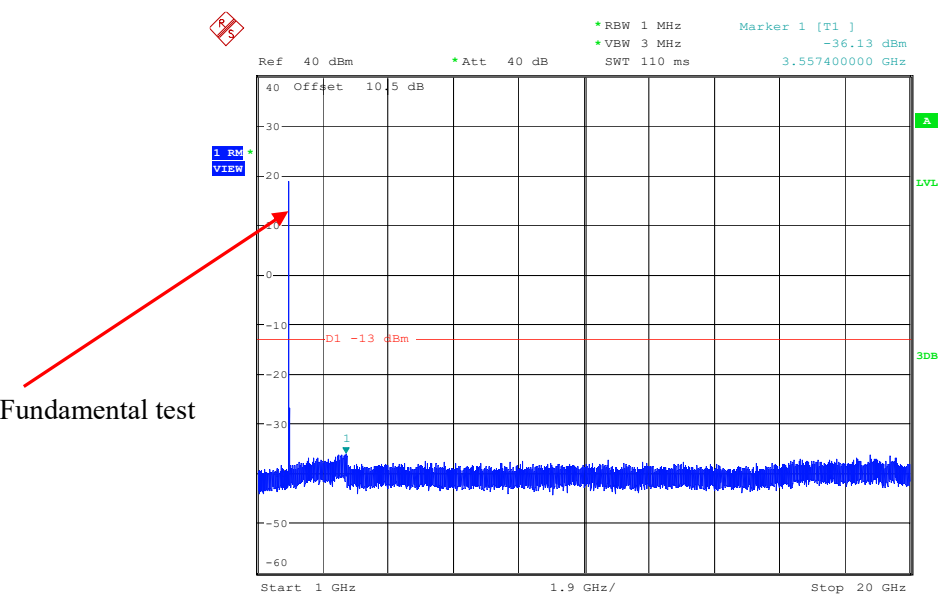
High Channel:

30 MHz – 1GHz (GSM Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 21.MAY.2024 21:48:24

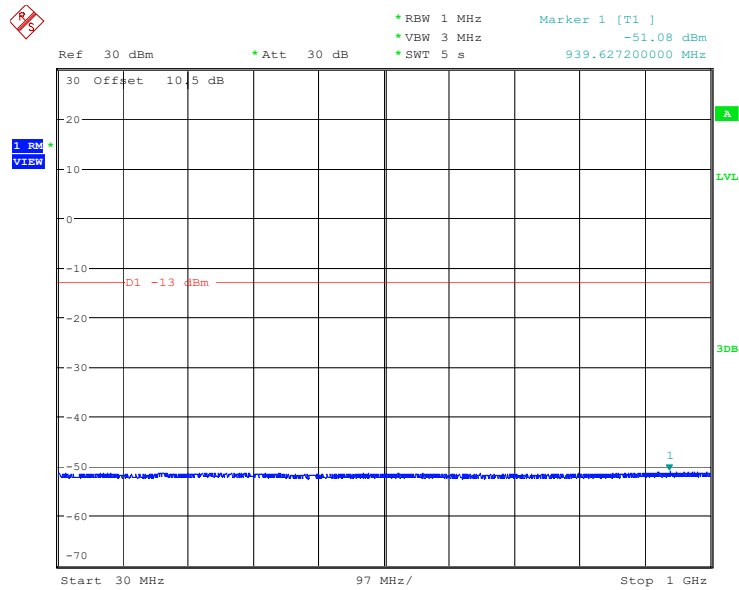
1 GHz – 20GHz (GSM Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 21.MAY.2024 21:36:36

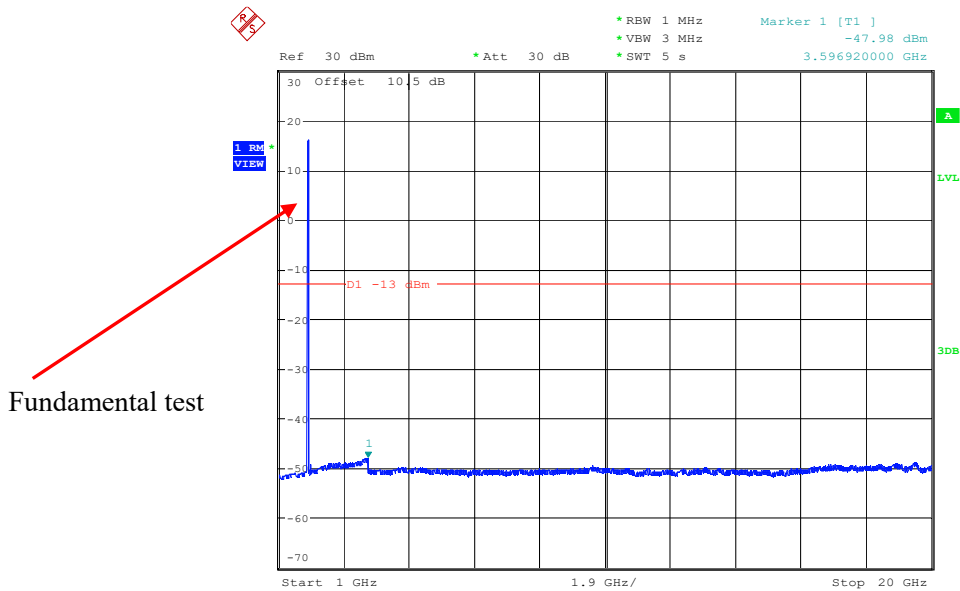
Low Channel:

30 MHz – 1GHz (WCDMA Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 23:52:15

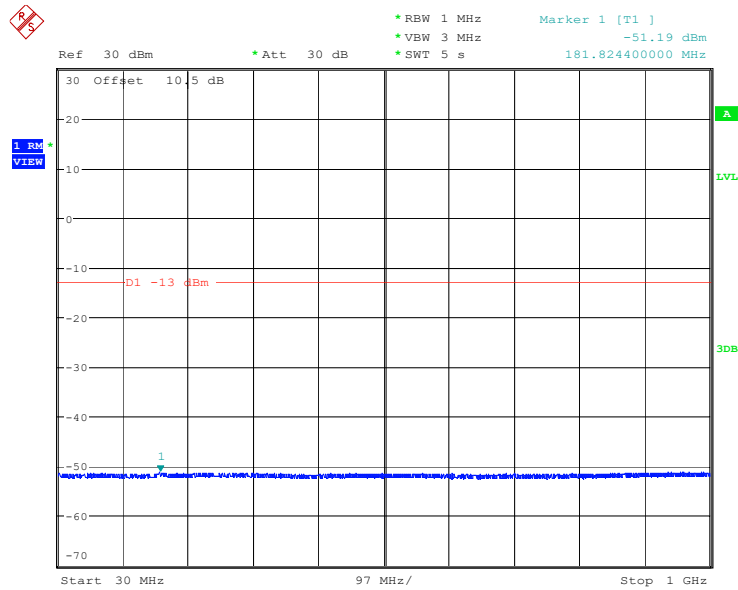
1 GHz – 20GHz (WCDMA Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 23:52:43

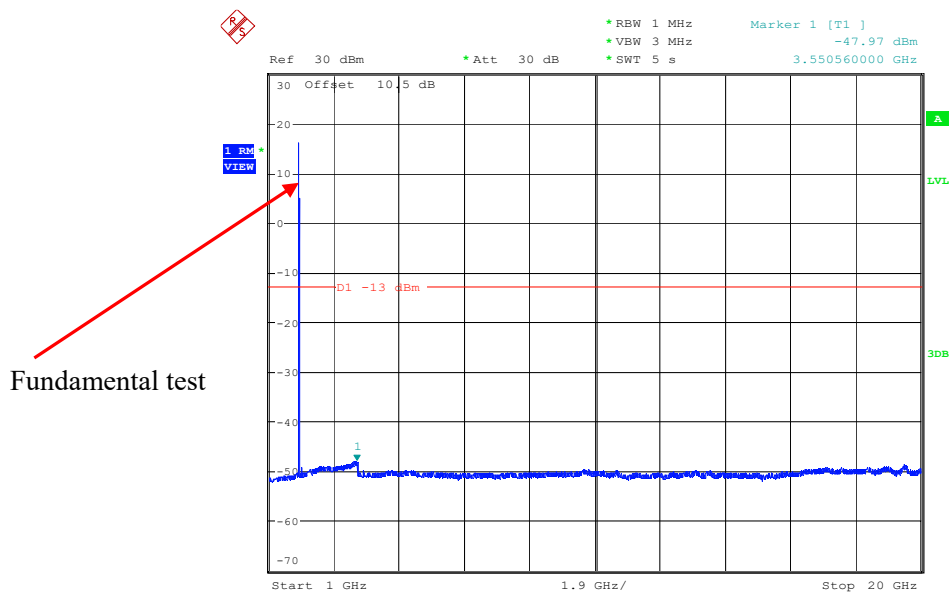
Middle Channel:

30 MHz – 1GHz (WCDMA Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 23:55:23

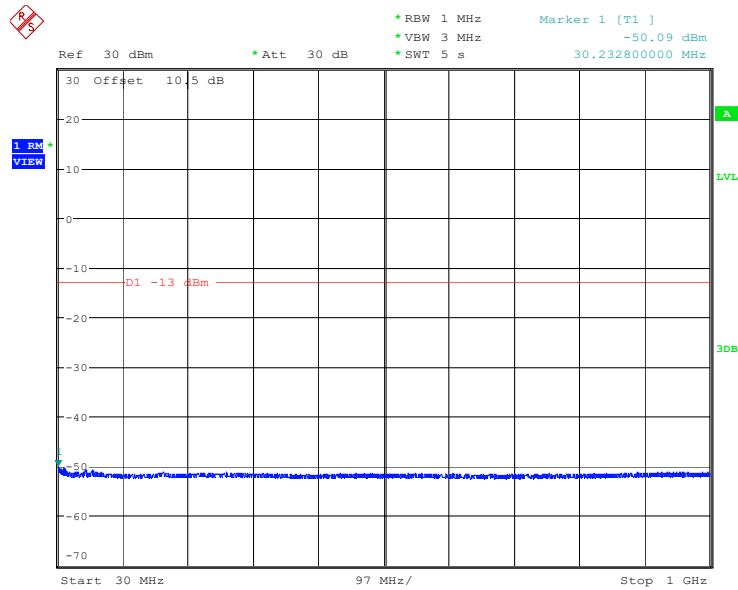
1 GHz – 20GHz (WCDMA Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 23:55:51

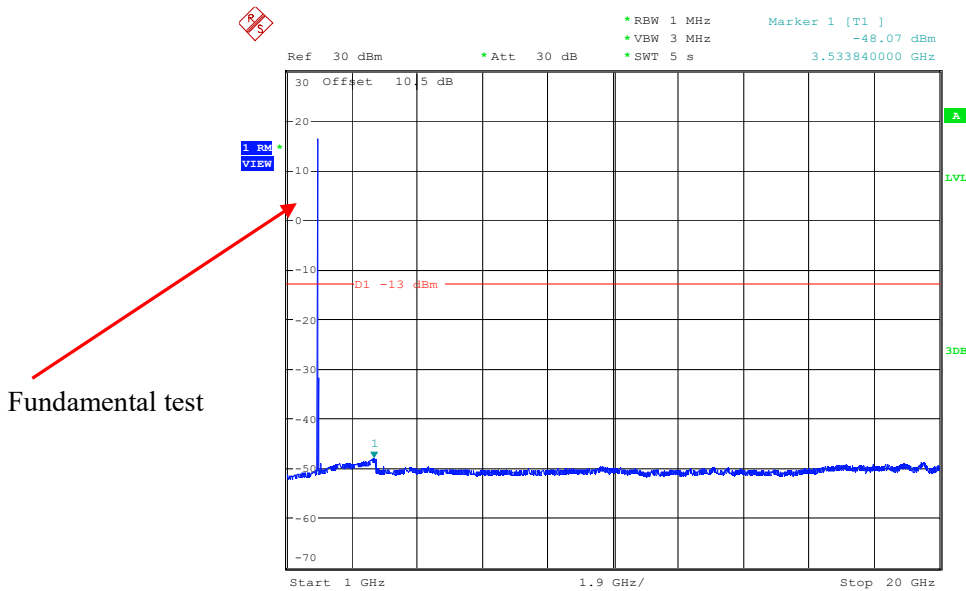
High Channel:

30 MHz – 1GHz (WCDMA Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 23:58:26

1GHz – 20GHz (WCDMA Mode)



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 23.MAY.2024 00:00:09

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

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:	25~25.5 °C
Relative Humidity:	50 %
ATM Pressure:	101kPa

The testing was performed by Anson Su on 2024-05-22 and Zenos Qiao from 2024-05-15 to 2024-05-16.

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

Frequency (MHz)	Receiver Reading (dBμV)	Polar (H / V)	Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)			
GSM 850 (30MHz-10GHz)								
Low Channel								
294.6	47.18	H	-60.8	0.94	0.0	-61.74	-13	48.74
293.2	43.04	V	-62.2	0.94	0.0	-63.14	-13	50.14
1648.40	46.07	H	-61.6	0.90	8.60	-53.90	-13	40.90
1648.40	46.54	V	-61.7	0.90	8.60	-54.00	-13	41.00
2472.60	49.15	H	-58.2	1.10	8.80	-50.50	-13	37.50
2472.60	48.62	V	-58.5	1.10	8.80	-50.80	-13	37.80
3296.80	45.73	H	-60.3	1.30	8.80	-52.80	-13	39.80
3296.80	45.21	V	-60.5	1.30	8.80	-53.00	-13	40.00
Middle Channel								
294.6	47.85	H	-60.2	0.94	0.0	-61.14	-13	48.14
293.2	43.63	V	-61.6	0.94	0.0	-62.54	-13	49.54
1673.20	46.56	H	-61.0	0.90	8.60	-53.30	-13	40.30
1673.20	46.99	V	-61.2	0.90	8.60	-53.50	-13	40.50
2509.80	49.78	H	-57.6	1.10	8.80	-49.90	-13	36.90
2509.80	49.05	V	-58.1	1.10	8.80	-50.40	-13	37.40
3346.40	46.14	H	-59.8	1.30	8.80	-52.30	-13	39.30
3346.40	45.61	V	-60.1	1.30	8.80	-52.60	-13	39.60
High Channel								
294.6	48.39	H	-59.6	0.94	0.0	-60.54	-13	47.54
293.2	44.02	V	-61.2	0.94	0.0	-62.14	-13	49.14
1697.60	47.14	H	-60.4	0.90	8.60	-52.70	-13	39.70
1697.60	47.86	V	-60.3	0.90	8.60	-52.60	-13	39.60
2546.40	50.63	H	-56.7	1.10	8.80	-49.00	-13	36.00
2546.40	49.92	V	-57.2	1.10	8.80	-49.50	-13	36.50
3395.20	46.75	H	-59.2	1.30	9.90	-50.60	-13	37.60
3395.20	46.28	V	-59.4	1.30	9.90	-50.80	-13	37.80

Frequency (MHz)	Receiver Reading (dBμV)	Polar (H / V)	Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)			
PCS 1900(30MHz-20GHz)								
Low Channel								
294.6	47.52	H	-60.5	0.94	0.0	-61.44	-13	48.44
293.2	43.35	V	-61.9	0.94	0.0	-62.84	-13	49.84
3700.40	47.27	H	-58.1	1.30	11.00	-48.40	-13	35.40
3700.40	46.82	V	-58.4	1.30	11.00	-48.70	-13	35.70
Middle Channel								
294.6	48.05	H	-60.0	0.94	0.0	-60.94	-13	47.94
293.2	43.86	V	-61.3	0.94	0.0	-62.24	-13	49.24
3760.00	47.75	H	-57.4	1.30	10.70	-48.00	-13	35.00
3760.00	47.32	V	-57.7	1.30	10.70	-48.30	-13	35.30
High Channel								
294.6	48.52	H	-59.5	0.94	0.0	-60.44	-13	47.44
293.2	44.25	V	-61.0	0.94	0.0	-61.94	-13	48.94
3819.60	48.44	H	-56.7	1.30	10.70	-47.30	-13	34.30
3819.60	47.93	V	-57.1	1.30	10.70	-47.70	-13	34.70

Frequency (MHz)	Receiver Reading (dBμV)	Polar (H / V)	Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)			
WCDMA Band 2 (30MHz-20GHz)								
Low Channel								
294.6	46.59	H	-61.4	0.94	0.0	-62.34	-13	49.34
293.2	42.57	V	-62.6	0.94	0.0	-63.54	-13	50.54
3704.80	46.68	H	-58.7	1.30	11.00	-49.00	-13	36.00
3704.80	46.17	V	-59.1	1.30	11.00	-49.40	-13	36.40
5557.20	45.45	H	-57.0	1.70	10.90	-47.80	-13	34.80
5557.20	45.06	V	-57.5	1.70	10.90	-48.30	-13	35.30
Middle Channel								
294.6	46.78	H	-61.2	0.94	0.0	-62.14	-13	49.14
293.2	42.86	V	-62.3	0.94	0.0	-63.24	-13	50.24
3760.00	47.15	H	-58.0	1.30	10.70	-48.60	-13	35.60
3760.00	46.53	V	-58.5	1.30	10.70	-49.10	-13	36.10
5640.00	45.96	H	-56.5	1.70	10.90	-47.30	-13	34.30
5640.00	45.49	V	-57.1	1.70	10.90	-47.90	-13	34.90
High Channel								
294.6	47.32	H	-60.7	0.94	0.0	-61.64	-13	48.64
293.2	43.73	V	-61.5	0.94	0.0	-62.44	-13	49.44
3815.20	48.09	H	-57.0	1.30	10.70	-47.60	-13	34.60
3815.20	47.64	V	-57.4	1.30	10.70	-48.00	-13	35.00
5722.80	46.38	H	-55.8	1.70	11.10	-46.40	-13	33.40
5722.80	45.91	V	-56.4	1.70	11.10	-47.00	-13	34.00

Frequency (MHz)	Receiver Reading (dBμV)	Polar (H / V)	Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)			
WCDMA Band 5 (30MHz-10GHz)								
Low Channel								
294.6	46.23	H	-61.8	0.94	0.0	-62.74	-13	49.74
293.2	42.18	V	-63.0	0.94	0.0	-63.94	-13	50.94
1652.80	48.25	H	-59.3	0.90	8.60	-51.60	-13	38.60
1652.80	47.64	V	-60.5	0.90	8.60	-52.80	-13	39.80
2479.20	46.17	H	-61.2	1.10	8.80	-53.50	-13	40.50
2479.20	46.76	V	-60.4	1.10	8.80	-52.70	-13	39.70
3305.60	45.08	H	-60.9	1.30	8.80	-53.40	-13	40.40
3305.60	45.52	V	-60.2	1.30	8.80	-52.70	-13	39.70
Middle Channel								
294.6	47.01	H	-61.0	0.94	0.0	-61.94	-13	48.94
293.2	43.25	V	-62.0	0.94	0.0	-62.94	-13	49.94
1673.20	48.79	H	-58.8	0.90	8.60	-51.10	-13	38.10
1673.20	48.12	V	-60.0	0.90	8.60	-52.30	-13	39.30
2509.80	46.87	H	-60.5	1.10	8.80	-52.80	-13	39.80
2509.80	47.38	V	-59.7	1.10	8.80	-52.00	-13	39.00
3346.40	45.43	H	-60.6	1.30	8.80	-53.10	-13	40.10
3346.40	45.71	V	-60.0	1.30	8.80	-52.50	-13	39.50
High Channel								
294.6	47.63	H	-60.4	0.94	0.0	-61.34	-13	48.34
293.2	43.98	V	-61.2	0.94	0.0	-62.14	-13	49.14
1693.20	49.68	H	-57.9	0.90	8.60	-50.20	-13	37.20
1693.20	48.99	V	-59.2	0.90	8.60	-51.50	-13	38.50
2539.80	47.54	H	-59.8	1.10	8.80	-52.10	-13	39.10
2539.80	48.05	V	-59.1	1.10	8.80	-51.40	-13	38.40
3386.40	45.87	H	-60.1	1.30	9.90	-51.50	-13	38.50
3386.40	46.46	V	-59.2	1.30	9.90	-50.60	-13	37.60

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

Frequency (MHz)	Receiver Reading (dBμV)	Polar (H / V)	Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)			
Band 2 (30MHz-20GHz)								
QPSK, 1.4MHz, Low Channel								
294.6	45.54	H	-62.5	0.94	0.0	-63.44	-13	50.44
293.2	41.46	V	-63.7	0.94	0.0	-64.64	-13	51.64
3701.40	47.24	H	-58.2	1.30	11.00	-48.50	-13	35.50
3701.40	46.88	V	-58.4	1.30	11.00	-48.70	-13	35.70
5552.10	45.52	H	-56.9	1.70	10.90	-47.70	-13	34.70
5552.10	45.93	V	-56.6	1.70	10.90	-47.40	-13	34.40
QPSK, 1.4MHz, Middle Channel								
294.6	46.02	H	-62.0	0.94	0.0	-62.94	-13	49.94
293.2	41.96	V	-63.2	0.94	0.0	-64.14	-13	51.14
3760.00	47.57	H	-57.6	1.30	10.70	-48.20	-13	35.20
3760.00	47.12	V	-57.9	1.30	10.70	-48.50	-13	35.50
5640.00	45.98	H	-56.4	1.70	10.90	-47.20	-13	34.20
5640.00	46.34	V	-56.2	1.70	10.90	-47.00	-13	34.00
QPSK, 1.4MHz, High Channel								
294.6	46.93	H	-61.1	0.94	0.0	-62.04	-13	49.04
293.2	42.85	V	-62.4	0.94	0.0	-63.34	-13	50.34
3818.60	48.69	H	-56.4	1.30	10.70	-47.00	-13	34.00
3818.60	48.04	V	-57.0	1.30	10.70	-47.60	-13	34.60
5727.90	46.71	H	-55.5	1.70	11.10	-46.10	-13	33.10
5727.90	47.25	V	-55.1	1.70	11.10	-45.70	-13	32.70

Frequency (MHz)	Receiver Reading (dBμV)	Polar (H / V)	Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)			
Band4 (30MHz-20GHz)								
QPSK, 1.4MHz, Low Channel								
294.6	45.87	H	-62.1	0.94	0.0	-63.04	-13	50.04
293.2	41.72	V	-63.5	0.94	0.0	-64.44	-13	51.44
3421.40	48.37	H	-57.6	1.30	9.90	-49.00	-13	36.00
3421.40	47.88	V	-57.8	1.30	9.90	-49.20	-13	36.20
5132.10	46.94	H	-56.2	1.50	9.60	-48.10	-13	35.10
5132.10	47.41	V	-55.2	1.50	9.60	-47.10	-13	34.10
QPSK, 1.4MHz, Middle Channel								
294.6	46.29	H	-61.7	0.94	0.0	-62.64	-13	49.64
293.2	42.12	V	-63.1	0.94	0.0	-64.04	-13	51.04
3465.00	49.25	H	-56.7	1.30	10.50	-47.50	-13	34.50
3465.00	48.64	V	-57.0	1.30	10.50	-47.80	-13	34.80
5197.50	47.38	H	-55.7	1.60	9.70	-47.60	-13	34.60
5197.50	47.86	V	-54.8	1.60	9.70	-46.70	-13	33.70
QPSK, 1.4MHz, High Channel								
294.6	46.63	H	-61.4	0.94	0.0	-62.34	-13	49.34
293.2	42.47	V	-62.7	0.94	0.0	-63.64	-13	50.64
3508.60	49.99	H	-56.0	1.30	10.50	-46.80	-13	33.80
3508.60	49.42	V	-56.2	1.30	10.50	-47.00	-13	34.00
5262.90	47.56	H	-55.4	1.60	10.00	-47.00	-13	34.00
5262.90	48.07	V	-54.6	1.60	10.00	-46.20	-13	33.20

Frequency (MHz)	Receiver Reading (dBμV)	Polar (H / V)	Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)			
Band 7 (30MHz-26.5GHz)								
QPSK, 5MHz, Low Channel								
294.6	45.86	H	-62.1	0.94	0.0	-63.04	-25	38.04
293.2	42.01	V	-63.2	0.94	0.0	-64.14	-25	39.14
5005.00	47.64	H	-55.7	1.50	9.80	-47.40	-25	22.40
5005.00	47.17	V	-55.4	1.50	9.80	-47.10	-25	22.10
7507.50	45.25	H	-50.7	1.90	10.80	-41.80	-25	16.80
7507.50	45.96	V	-50.4	1.90	10.80	-41.50	-25	16.50
QPSK, 5MHz, Middle Channel								
294.6	46.14	H	-61.9	0.94	0.0	-62.84	-25	37.84
293.2	42.23	V	-63.0	0.94	0.0	-63.94	-25	38.94
5070.00	48.08	H	-55.1	1.50	9.60	-47.00	-25	22.00
5070.00	47.53	V	-55.1	1.50	9.60	-47.00	-25	22.00
7605.00	45.67	H	-50.2	1.90	11.00	-41.10	-25	16.10
7605.00	46.34	V	-49.9	1.90	11.00	-40.80	-25	15.80
QPSK, 5MHz, High Channel								
294.6	46.93	H	-61.1	0.94	0.0	-62.04	-25	37.04
293.2	42.85	V	-62.4	0.94	0.0	-63.34	-25	38.34
5135.00	49.32	H	-53.9	1.50	9.60	-45.80	-25	20.80
5135.00	48.69	V	-53.9	1.50	9.60	-45.80	-25	20.80
7702.50	46.41	H	-49.4	1.90	10.90	-40.40	-25	15.40
7702.50	47.18	V	-49.0	1.90	10.90	-40.00	-25	15.00

Frequency (MHz)	Receiver Reading (dBμV)	Polar (H / V)	Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)			
Band 38 (30MHz-26.5GHz)								
QPSK, 5MHz, Low Channel								
294.6	45.45	H	-62.6	0.94	0.0	-63.54	-25	38.54
293.2	41.88	V	-63.3	0.94	0.0	-64.24	-25	39.24
5145.00	48.27	H	-54.9	1.50	9.60	-46.80	-25	21.80
5145.00	47.75	V	-54.9	1.50	9.60	-46.80	-25	21.80
7717.50	46.06	H	-49.7	1.90	10.90	-40.70	-25	15.70
7717.50	46.54	V	-49.6	1.90	10.90	-40.60	-25	15.60
QPSK, 5MHz, Middle Channel								
294.6	46.47	H	-61.5	0.94	0.0	-62.44	-25	37.44
293.2	42.58	V	-62.6	0.94	0.0	-63.54	-25	38.54
5190.00	48.89	H	-54.2	1.60	9.70	-46.10	-25	21.10
5190.00	48.36	V	-54.3	1.60	9.70	-46.20	-25	21.20
7785.00	46.45	H	-49.3	1.90	11.10	-40.10	-25	15.10
7785.00	46.92	V	-49.2	1.90	11.10	-40.00	-25	15.00
QPSK, 5MHz, High Channel								
294.6	47.14	H	-60.9	0.94	0.0	-61.84	-25	36.84
293.2	43.02	V	-62.2	0.94	0.0	-63.14	-25	38.14
5235.00	49.78	H	-53.3	1.60	9.70	-45.20	-25	20.20
5235.00	49.25	V	-53.4	1.60	9.70	-45.30	-25	20.30
7852.50	47.07	H	-48.6	1.90	11.10	-39.40	-25	14.40
7852.50	47.69	V	-48.3	1.90	11.10	-39.10	-25	14.10

Note:

Absolute Level = Reading Level + Substituted Factor

Substituted Factor contains: Substituted Level - Cable loss+ Antenna Gain

Margin = Limit-Absolute Level

FCC§ 22.917 (a); § 24.238 (a); §27.53 (h)(m) - 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 (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.

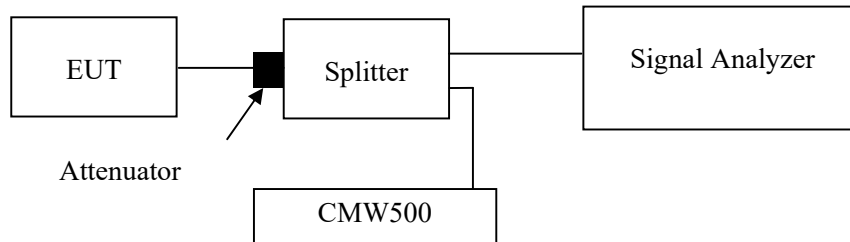
According to FCC §27.53 (m), For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel 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 than $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5MHz.

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:	22~25 °C
Relative Humidity:	44~45 %
ATM Pressure:	101kPa

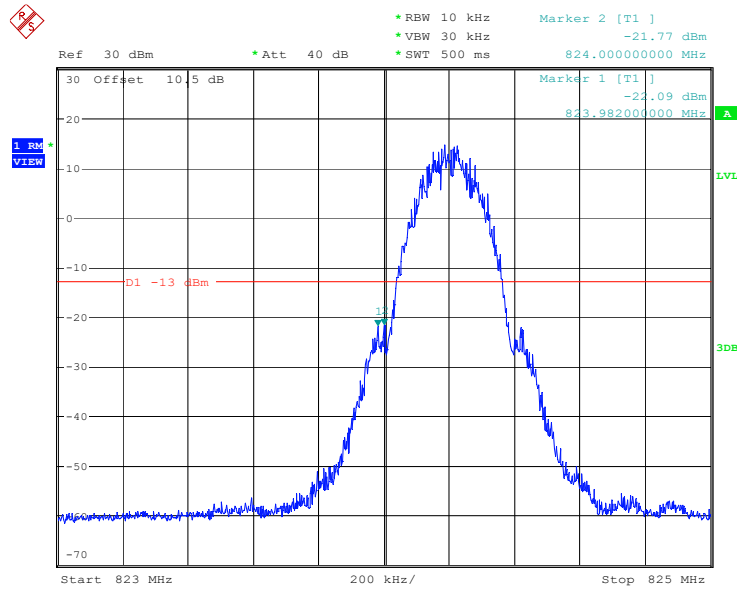
The testing was performed by Allen Bai from 2024-05-19 to 2024-05-28.

EUT operation mode: Transmitting (Worst case)

Test Result: Compliant

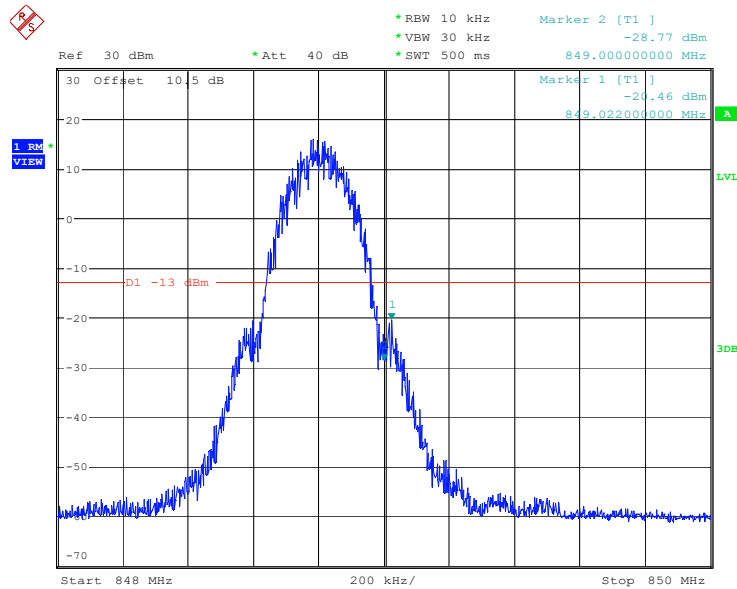
Please refer to the following plots.

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



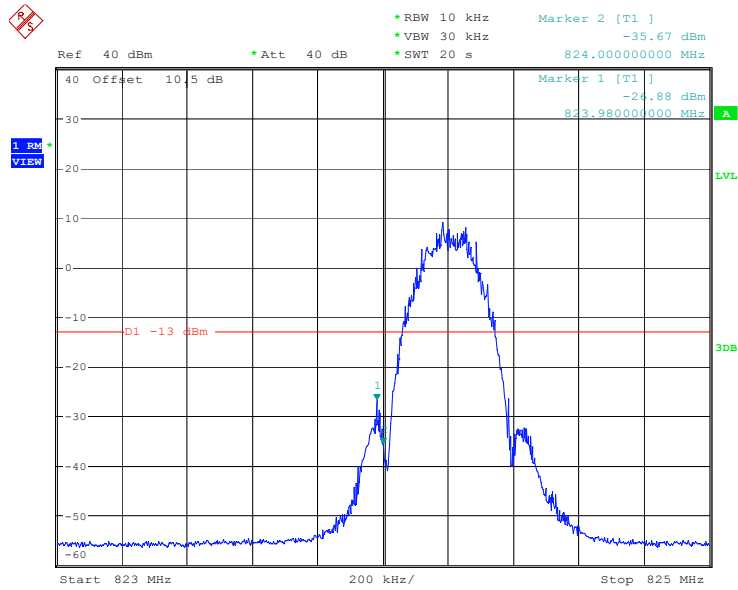
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Date: 21.MAY.2024 21:04:11

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



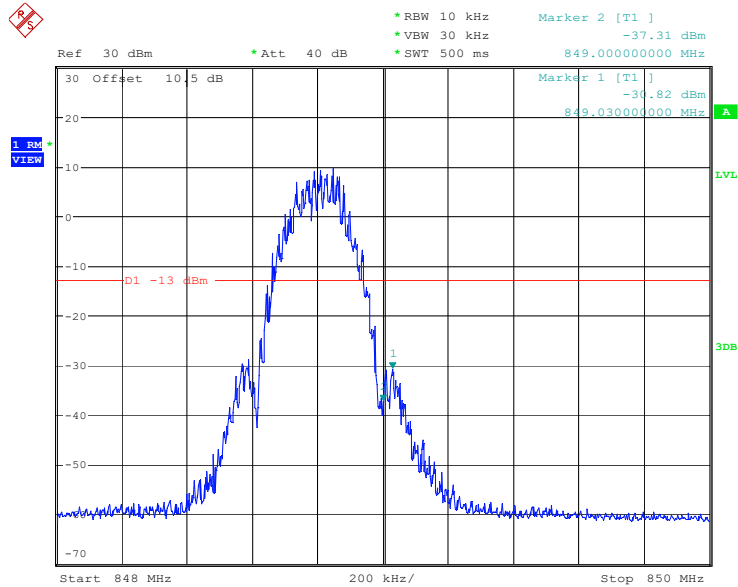
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Date: 21.MAY.2024 20:38:40

Cellular Band, Left Band Edge for EDGE (8PSK) Mode



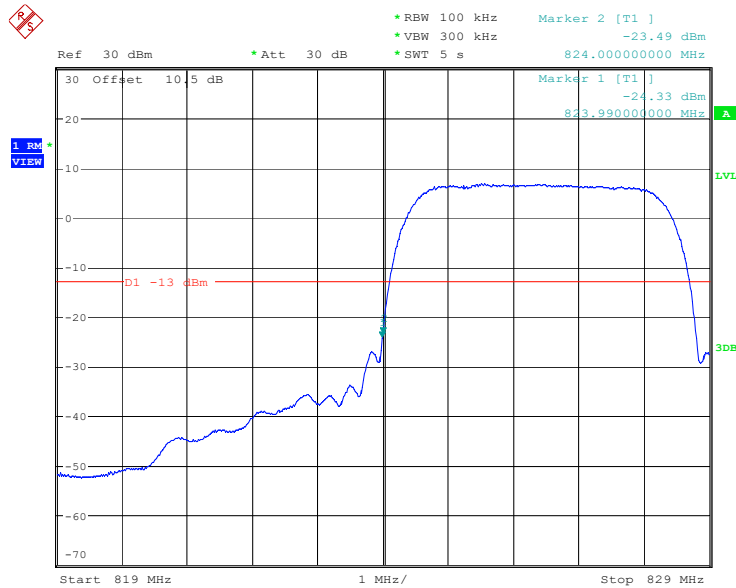
ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 00:22:09

Cellular Band, Right Band Edge for EDGE (8PSK) Mode



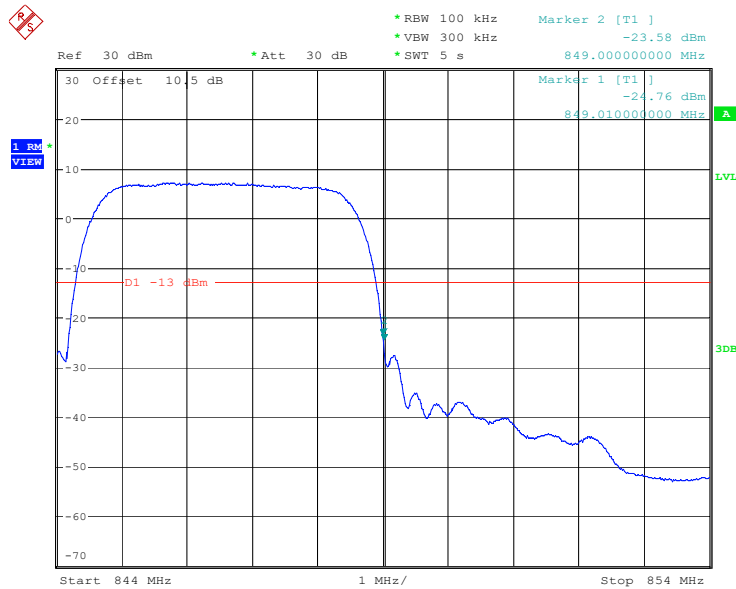
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Date: 22.MAY.2024 00:36:36

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



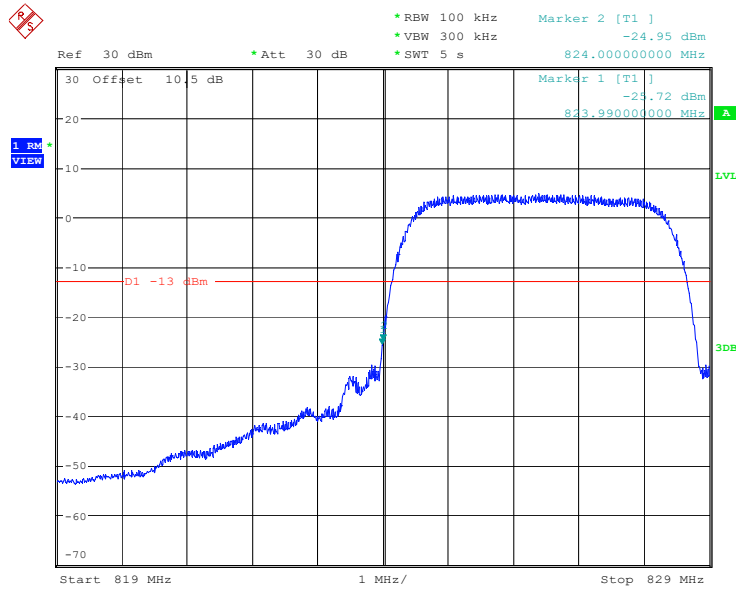
ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 02:26:16

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



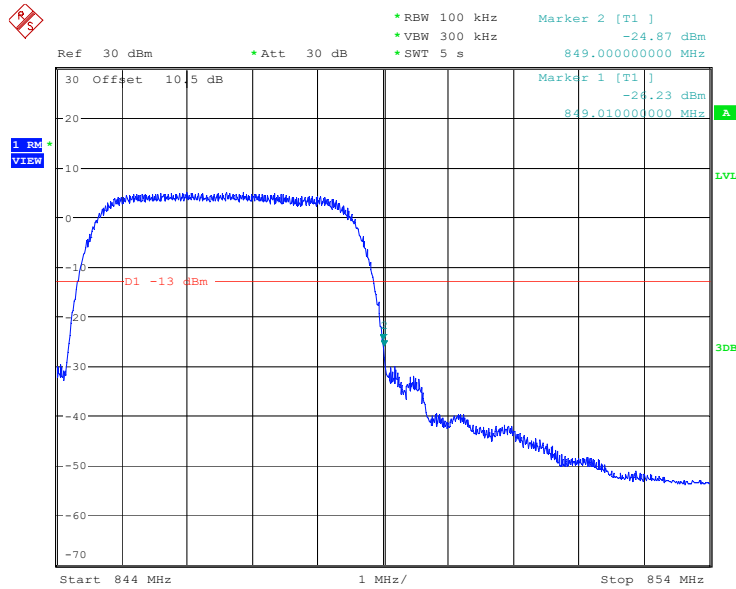
ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 02:34:08

Cellular Band, Left Band Edge for HSDPA(16QAM) Mode



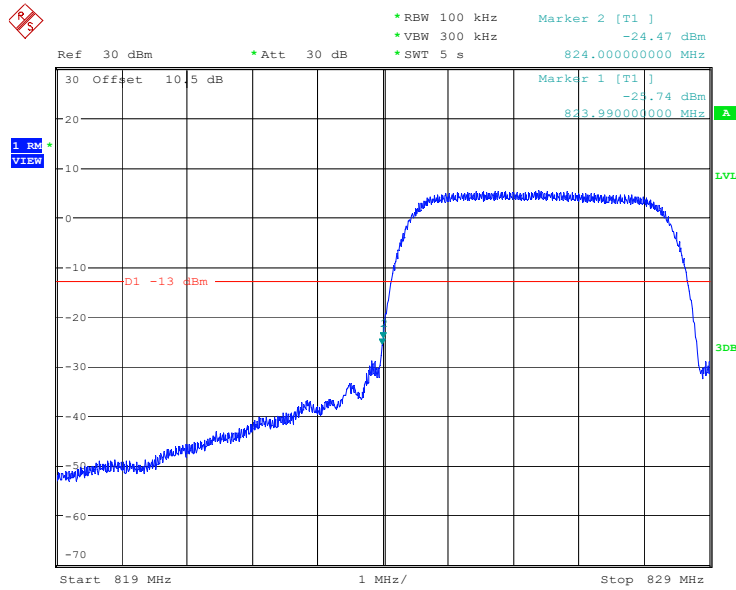
ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 02:41:37

Cellular Band, Right Band Edge for HSDPA (16QAM) Mode



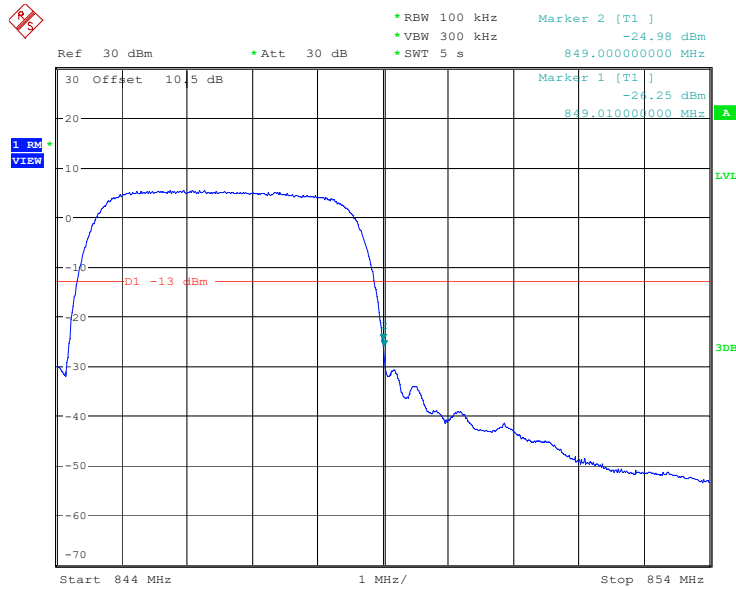
ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 02:51:57

Cellular Band, Left Band Edge for HSUPA (QPSK) Mode



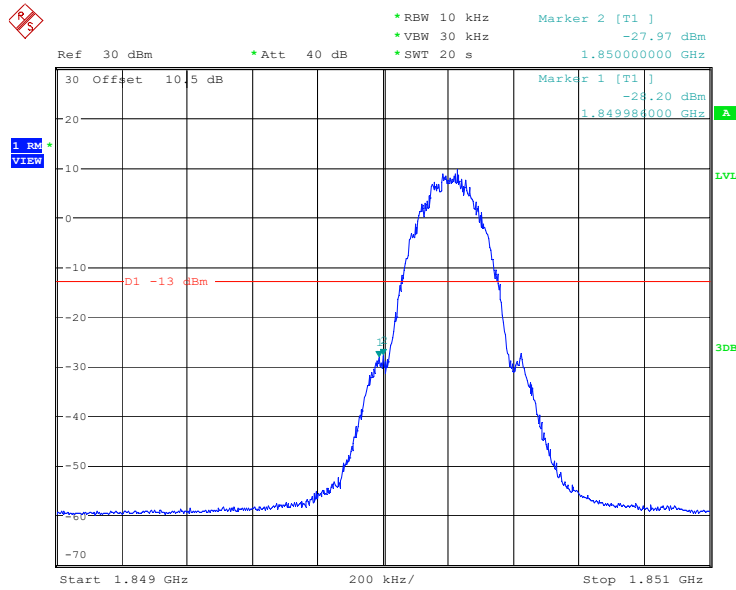
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Date: 22.MAY.2024 03:09:27

Cellular Band, Right Band Edge for HSUPA (QPSK) Mode



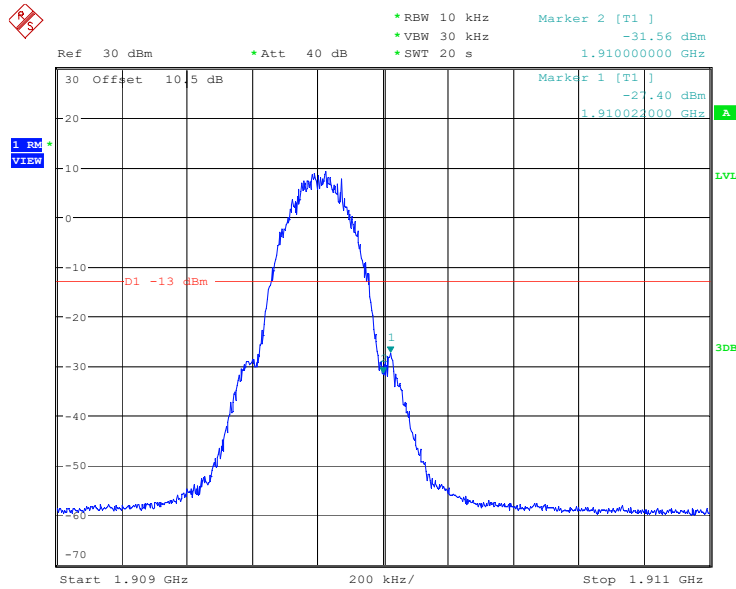
ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 02:58:16

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



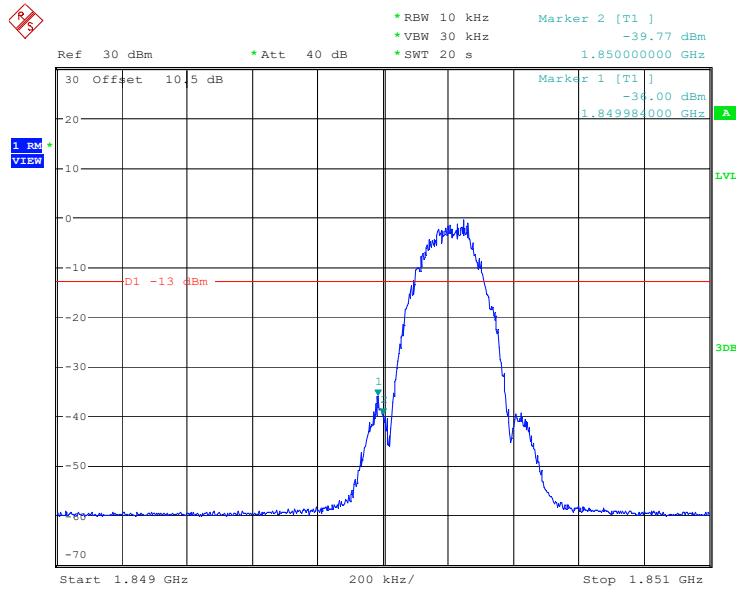
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PCS Band, Right Band Edge for GSM (GMSK) Mode



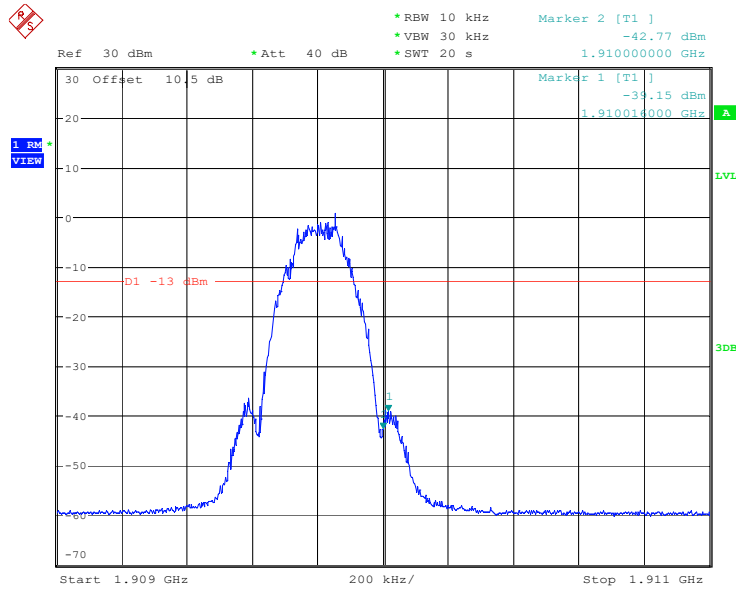
ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 21.MAY.2024 21:35:33

PCS Band, Left Band Edge for EDGE (8PSK) Mode



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 23:34:55

PCS Band, Right Band Edge for EDGE (8PSK) Mode

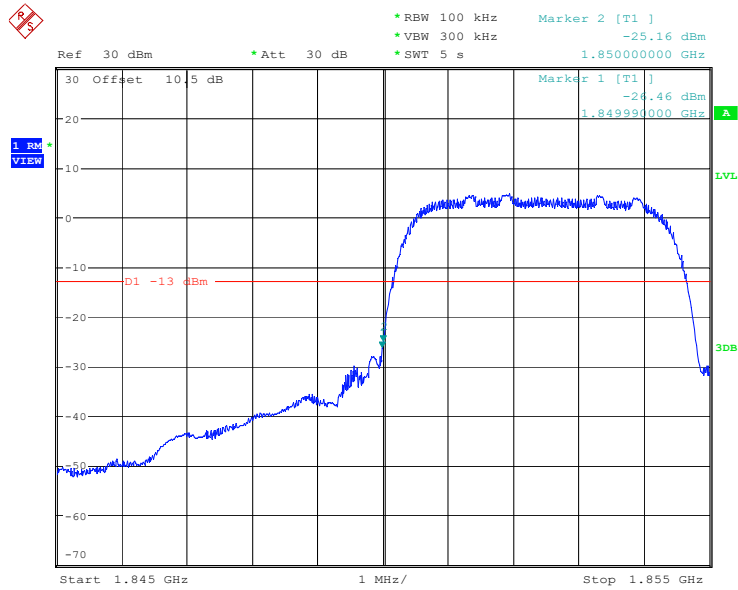


ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 22.MAY.2024 23:30:48



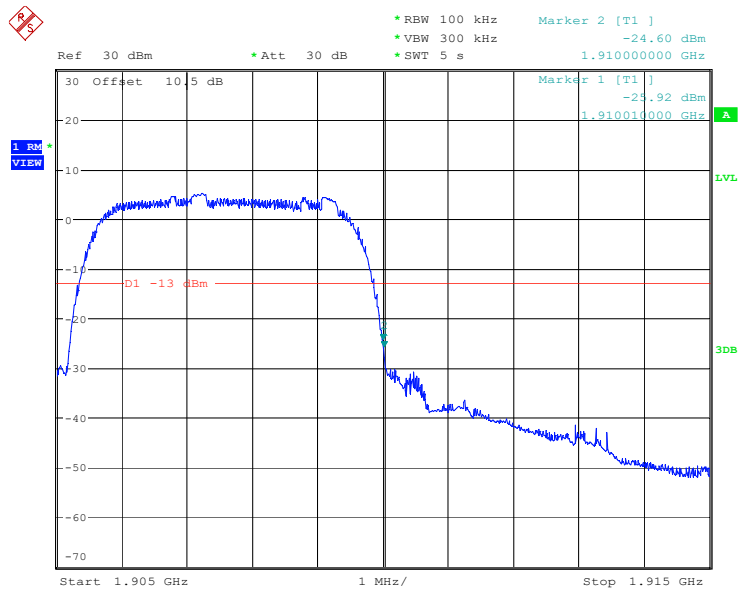
Version 3.0

PCS Band, Left Band Edge for HSDPA(16QAM) Mode



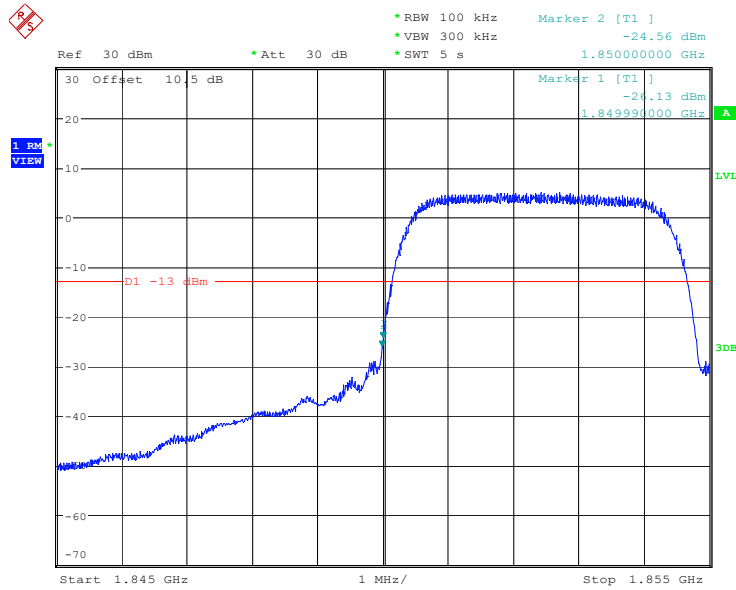
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PCS Band, Right Band Edge for HSDPA (16QAM) Mode



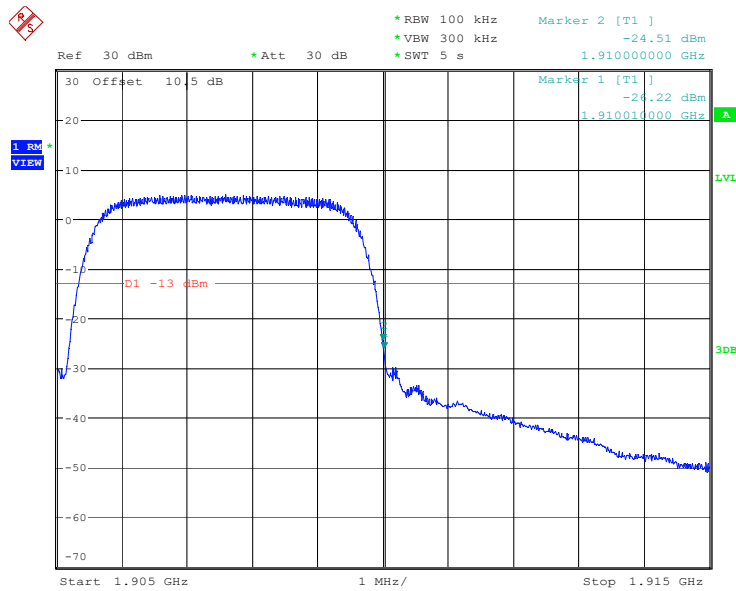
ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 23.MAY.2024 00:06:29

PCS Band, Left Band Edge for HSUPA (QPSK) Mode



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 23.MAY.2024 00:28:57

PCS Band, Right Band Edge for HSUPA (QPSK) Mode



ProjectNo.:2401S34482E-RF Tester:Allen Bai
Date: 23.MAY.2024 00:26:33

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

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.

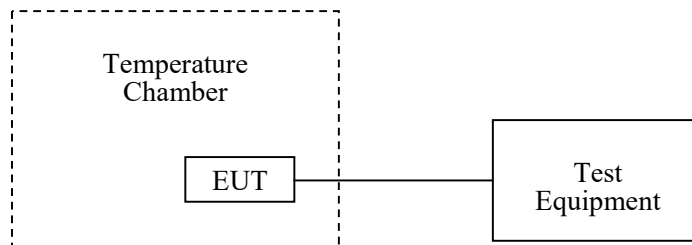
Test Procedure

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:	22~25 °C
Relative Humidity:	44~45 %
ATM Pressure:	101kPa

The testing was performed by Allen Bai from 2024-05-19 to 2024-05-29

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	12	12.66	0.015	2.5
	-20	12	8.59	0.010	2.5
	-10	12	7.43	0.009	2.5
	0	12	11.64	0.014	2.5
	10	12	5.78	0.007	2.5
	20	12	6.07	0.007	2.5
	30	12	3.28	0.004	2.5
	40	12	14.39	0.017	2.5
	50	12	0.95	0.001	2.5
Frequency Stability vs. Voltage	20	9	-0.97	-0.001	2.5
	20	40	15.25	0.018	2.5

Test Modulation:	8PSK		Test Channel:	836.6	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	12	15.82	0.019	2.5
	-20	12	12.03	0.014	2.5
	-10	12	8.09	0.010	2.5
	0	12	14.62	0.017	2.5
	10	12	11.47	0.014	2.5
	20	12	12.56	0.015	2.5
	30	12	9.23	0.011	2.5
	40	12	15.43	0.018	2.5
	50	12	9.52	0.011	2.5
Frequency Stability vs. Voltage	20	9	13.11	0.016	2.5
	20	40	14.33	0.017	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	12	9.14	0.011	2.5
	-20	12	6.26	0.007	2.5
	-10	12	10.37	0.012	2.5
	0	12	11.85	0.014	2.5
	10	12	8.56	0.010	2.5
	20	12	5.69	0.007	2.5
	30	12	7.37	0.009	2.5
	40	12	8.15	0.010	2.5
	50	12	10.03	0.012	2.5
Frequency Stability vs. Voltage	20	9	7.72	0.009	2.5
	20	40	10.74	0.013	2.5

PCS Band (Part 24E)**GSM Mode**

Test Mode:	GMSK	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	12	1850.146	1850.000	1909.867	1910.000
	-20	12	1850.103	1850.000	1909.854	1910.000
	-10	12	1850.137	1850.000	1909.845	1910.000
	0	12	1850.168	1850.000	1909.852	1910.000
	10	12	1850.049	1850.000	1909.863	1910.000
	20	12	1850.188	1850.000	1909.851	1910.000
	30	12	1850.115	1850.000	1909.853	1910.000
	40	12	1850.146	1850.000	1909.964	1910.000
	50	12	1850.149	1850.000	1909.846	1910.000
Frequency Stability vs. Voltage	20	9	1850.154	1850.000	1909.819	1910.000
	20	40	1850.145	1850.000	1909.881	1910.000

Test Mode:	8PSK	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	12	1850.145	1850.000	1909.853	1910.000
	-20	12	1850.164	1850.000	1909.861	1910.000
	-10	12	1850.158	1850.000	1909.859	1910.000
	0	12	1850.153	1850.000	1909.829	1910.000
	10	12	1850.164	1850.000	1909.841	1910.000
	20	12	1850.162	1850.000	1909.863	1910.000
	30	12	1850.151	1850.000	1909.849	1910.000
	40	12	1850.154	1850.000	1909.947	1910.000
	50	12	1850.154	1850.000	1909.812	1910.000
Frequency Stability vs. Voltage	20	9	1850.178	1850.000	1909.854	1910.000
	20	40	1850.154	1850.000	1909.889	1910.000

WCDMA Mode

Test Mode:	WCDMA R99	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	12	1850.246	1850.000	1909.647	1910.000
	-20	12	1850.264	1850.000	1909.684	1910.000
	-10	12	1850.644	1850.000	1909.855	1910.000
	0	12	1850.365	1850.000	1909.688	1910.000
	10	12	1850.247	1850.000	1909.665	1910.000
	20	12	1850.964	1850.000	1909.655	1910.000
	30	12	1850.655	1850.000	1909.045	1910.000
	40	12	1850.549	1850.000	1909.653	1910.000
	50	12	1850.965	1850.000	1909.842	1910.000
Frequency Stability vs. Voltage	20	9	1850.675	1850.000	1909.522	1910.000
	20	40	1850.649	1850.000	1909.663	1910.000

LTE Band 2**QPSK:**

Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	12	1850.567	1850.000	1909.250	1910.000
	-20	12	1850.798	1850.000	1909.166	1910.000
	-10	12	1850.575	1850.000	1909.302	1910.000
	0	12	1850.474	1850.000	1909.666	1910.000
	10	12	1850.462	1850.000	1909.080	1910.000
	20	12	1850.470	1850.000	1909.603	1910.000
	30	12	1850.055	1850.000	1909.951	1910.000
	40	12	1850.407	1850.000	1909.517	1910.000
	50	12	1850.778	1850.000	1909.186	1910.000
Frequency Stability vs. Voltage	20	9	1850.709	1850.000	1909.016	1910.000
	20	40	1850.562	1850.000	1909.603	1910.000

16QAM:

Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	12	1850.718	1850.000	1909.388	1910.000
	-20	12	1850.772	1850.000	1909.960	1910.000
	-10	12	1850.376	1850.000	1909.043	1910.000
	0	12	1850.897	1850.000	1909.140	1910.000
	10	12	1850.690	1850.000	1909.666	1910.000
	20	12	1850.485	1850.000	1909.945	1910.000
	30	12	1850.545	1850.000	1909.196	1910.000
	40	12	1850.277	1850.000	1909.087	1910.000
	50	12	1850.048	1850.000	1909.911	1910.000
Frequency Stability vs. Voltage	20	9	1850.628	1850.000	1909.230	1910.000
	20	40	1850.354	1850.000	1909.409	1910.000

LTE Band 4
QPSK:

Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	12	1710.350	1710.00	1754.365	1755
	-20	12	1710.346	1710.00	1754.689	1755
	-10	12	1710.622	1710.00	1754.367	1755
	0	12	1710.348	1710.00	1754.362	1755
	10	12	1710.456	1710.00	1754.681	1755
	20	12	1710.937	1710.00	1754.957	1755
	30	12	1710.846	1710.00	1754.698	1755
	40	12	1710.387	1710.00	1754.021	1755
	50	12	1710.954	1710.00	1754.327	1755
Frequency Stability vs. Voltage	20	9	1710.687	1710.00	1754.247	1755
	20	40	1710.964	1710.00	1754.385	1755

16QAM:

Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge, Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	12	1710.626	1710.00	1754.967	1755
	-20	12	1710.054	1710.00	1754.321	1755
	-10	12	1710.872	1710.00	1754.024	1755
	0	12	1710.336	1710.00	1754.316	1755
	10	12	1710.951	1710.00	1754.671	1755
	20	12	1710.316	1710.00	1754.621	1755
	30	12	1710.741	1710.00	1754.078	1755
	40	12	1710.367	1710.00	1754.666	1755
	50	12	1710.871	1710.00	1754.364	1755
Frequency Stability vs. Voltage	20	9	1710.692	1710.00	1754.655	1755
	20	40	1710.328	1710.00	1754.955	1755

LTE Band 7**QPSK:**

Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	12	2500.196	2500.00	2569.711	2570
	-20	12	2500.795	2500.00	2569.443	2570
	-10	12	2500.002	2500.00	2569.735	2570
	0	12	2500.201	2500.00	2569.673	2570
	10	12	2500.848	2500.00	2569.837	2570
	20	12	2500.980	2500.00	2569.913	2570
	30	12	2500.106	2500.00	2569.207	2570
	40	12	2500.683	2500.00	2569.579	2570
	50	12	2500.640	2500.00	2569.570	2570
Frequency Stability vs. Voltage	20	9	2500.132	2500.00	2569.150	2570
	20	40	2500.956	2500.00	2569.179	2570

16QAM:

Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	12	2500.627	2500.00	2569.324	2570
	-20	12	2500.346	2500.00	2569.376	2570
	-10	12	2500.372	2500.00	2569.562	2570
	0	12	2500.621	2500.00	2569.845	2570
	10	12	2500.952	2500.00	2569.691	2570
	20	12	2500.344	2500.00	2569.367	2570
	30	12	2500.712	2500.00	2569.802	2570
	40	12	2500.729	2500.00	2569.021	2570
	50	12	2500.427	2500.00	2569.324	2570
Frequency Stability vs. Voltage	20	9	2500.624	2500.00	2569.354	2570
	20	40	2500.327	2500.00	2569.364	2570

LTE Band 38
QPSK:

Test Mode:	20M QPSK	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	12	2570.598	2570.00	2619.986	2620
	-20	12	2570.096	2570.00	2619.845	2620
	-10	12	2570.348	2570.00	2619.621	2620
	0	12	2570.468	2570.00	2619.365	2620
	10	12	2570.651	2570.00	2619.124	2620
	20	12	2570.742	2570.00	2619.548	2620
	30	12	2570.851	2570.00	2619.324	2620
	40	12	2570.964	2570.00	2619.132	2620
	50	12	2570.781	2570.00	2619.349	2620
Frequency Stability vs. Voltage	20	9	2570.349	2570.00	2619.127	2620
	20	40	2570.861	2570.00	2619.086	2620

16QAM:

Test Mode:	20M 16QAM	Test Channel: Lowest for Lower Edge,Highest for Upper Edge				
Test Item	Temperature (°C)	Voltage (V _{DC})	Lower Edge (MHz)		Upper Edge (MHz)	
			Result	Limit	Result	Limit
Frequency Stability vs. Temperature	-30	12	2570.689	2570.00	2619.264	2620
	-20	12	2570.612	2570.00	2619.648	2620
	-10	12	2570.851	2570.00	2619.812	2620
	0	12	2570.406	2570.00	2619.367	2620
	10	12	2570.645	2570.00	2619.648	2620
	20	12	2570.913	2570.00	2619.812	2620
	30	12	2570.125	2570.00	2619.961	2620
	40	12	2570.328	2570.00	2619.673	2620
	50	12	2570.124	2570.00	2619.812	2620
Frequency Stability vs. Voltage	20	9	2570.057	2570.00	2619.637	2620
	20	40	2570.344	2570.00	2619.542	2620

EUT PHOTOGRAPHS

Please refer to the attachment 2401S34482E-RF External photo and 2401S34482E-RF Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2401S34482E-RFC Test Setup photo.

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