FCC&IC TEST REPORT

FCC ID: 2A7ZC-SG7

On Behalf of

GEOMATE POSITIONING PTE. LTD.

Geodetic GNSS Receiver

Model No.: SG7

Prepared for	:	GEOMATE POSITIONING PTE. LTD.
Address	:	71 LORONG 23 GEYLANG, #07-09, WORK + STORE (71G), SINGAPORE (388386)

Prepared By	:	Shenzhen Alpha Product Testing Co., Ltd.
Address	:	Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103, Shenzhen, Guangdong, China

Report Number	:	A2204325-C01-R05
Date of Receipt	:	May 6, 2022
Date of Test	:	May 6, 2022 – July 8, 2022
Date of Report	:	July 12, 2022
Version Number	:	V0

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TEST REPORT DECLARATION

Applicant	:	GEOMATE POSITIONING PTE. LTD.
Address	:	71 LORONG 23 GEYLANG, #07-09, WORK + STORE (71G), SINGAPORE (388386)
Manufacturer	:	GEOMATE POSITIONING PTE. LTD.
Address	:	71 LORONG 23 GEYLANG, #07-09, WORK + STORE (71G), SINGAPORE (388386)
EUT Description	:	Geodetic GNSS Receiver
		(A) Model No. : SG7
		(B) Trademark : GEOMATE

Measurement Standard Used:
FCC CFR Title 47 Part 2
FCC CFR Title 47 Part22 Subpart H
FCC CFR Title 47 Part24 Subpart E
FCC CFR Title 47 Part27 Subpart C
ANSIC 63.26:2015

The device described above is tested by Shenzhen Alpha Product Testing Co., Ltd. to determine the maximum emission levels emanating from the device. The test results are contained in this test report and Shenzhen Alpha Product Testing Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After the test, our opinion is that EUT compliance with the requirement of the above standards.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen Alpha Product Testing Co., Ltd.

Tested by (name + signature).....:	Reak Yang Project Engineer	
Approved by (name + signature)…....:	Jack Xu Project Manager	
Date of issue…… ……..:	July 12, 2022	

Revision History

Revision	Issue Date	Revisions	Revised By
V0	July 12, 2022	Initial released Issue	Reak Yang

1 Test Summary

Test Item	Section in CFR 47	Result
RF Exposure (SAR)	Part 2.1310 Part 2.1091	Pass* (Please refer to MPE Report)
RF Output Power	Part 2.1046 Part 22.913 (a)(2) Part 24.232 (c) Part 27.50(d)(4)	Pass
Peak-to-Average Ratio	Part 2.1046 Part 22.913(d) Part 24.232 (d) Part 27.50(d)(5)	Pass
Modulation Characteristics	Part 2.1047	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 22.917 Part 24.238 Part 27.53(h)	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 22.917 (a) Part 24.238 (a) Part 27.53(h)	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 22.917 (a) Part 24.238 (a) Part 27.53(h)	Pass
Out of band emission, Band Edge	Part 22.917 (a) Part 24.238 (a) Part 27.53(h)	Pass
Frequency stability vs. temperature	Part 2.1055(a)(1)(b) Part 22.355, Part 24.235, Part 27.54	Pass
Frequency stability vs. voltage	Part 2.1055(d)(1)(2) Part 22.355, Part 24.235, Part 27.54	Pass

Note 1: Pass: The EUT complies with the essential requirements in the standard.
Note 2: The conclusion of this test report is judged by actual test data without considering measurement uncertainty.

2 General Information

2.1 General Description of EUT

Description/PMN	:	Geodetic GNSS Receiver
Model Number/HVIN(s)	:	SG7
Diff	:	N/A
Trademark	:	GEOMATE
Test Voltage	:	DC 5V from adapter, DC 7.2V from battery
Support Networks	:	GPRS, EGPRS, WCDMA
Support Bands	:	GSM850, PCS1900, WCDMA Band V, WCDMA Band II
TX Frequency	:	GSM850: 824.20MHz-848.80MHz PCS1900: 1850.20MHz-1909.80MHz WCDMA Band V: 826.40MHz -846.60MHz WCDMA Band IV: 1710MHz -1755MHz WCDMA Band II: 1852.40MHz -1907.60MHz
GPRS Class	:	12
EGPRS Class	:	12
Modulation type	:	GPRS: GMSK EGPRS: GMSK/8PSK WCDMA Band II/IV/V: QPSK
Antenna type	:	Internal antenna, Maximum Gain is 1dBi. (Antenna information is provided by applicant.)
Software version	:	V1.0
Hardware version/FVIN	:	V1.0.1

Remark: The worst-case simultaneous transmission configuration was evaluated with no non-compliance found. Results in this report are only for 2G and 3G function, and there is no other transmitter involved.

Operation Frequency List:

GSM 850		PCS1900		WCDMA Band V		WCDMA Band IV		WCDMA Band II	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
128	824.20	512	1850.20	4132	826.40	9262	1852.40	9262	1852.40
129	824.40	513	1850.40	4133	826.60	9263	1852.60	9263	1852.60
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
189	836.40	660	1879.80	4181	836.20	9399	1879.80	9399	1879.80
190	836.60	661	1880.00	4182	836.40	9400	1880.00	9400	1880.00
191	836.80	662	1880.20	4183	836.60	9401	1880.20	9401	1880.20
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
250	848.60	809	1909.60	4232	846.40	9537	1907.40	9537	1907.40
251	848.80	810	1909.80	4233	846.60	9538	1907.60	9538	1907.60

Regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Final test channel:

GSM 850		PCS1900		WCDMA Band II		WCDMA Band V	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
128	824.20	512	1850.20	9262	1852.40	4132	826.40
190	836.60	661	1880.00	9400	1880.00	4182	836.40
251	848.80	810	1909.80	9538	1907.60	4233	846.60

WCDMA Band IV	
Channel	Frequency (MHz)
1312	1712.4
1450	1740.0
1513	1752.6

2.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is filing to comply with Section Part 2, Part 22 subpart H, Part 24 subpart E, Part 27 subpart C of the FCC CFR 47 Rules, KDB 971168 D01 v03r01, ANSI C63.26 and TIA/EIA-603-E.

2.3 Test Facility

Shenzhen Alpha Product Testing Co., Ltd
Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103, Shenzhen, Guangdong, China

June 21, 2018 File on Federal Communication Commission
Registration Number: 293961
Designation Number: CN1236

July 15, 2019 Certificated by IC
Registration Number: 12135A

2.4 Measurement Uncertainty

Item	Uncertainty
Uncertainty for Power point Conducted Emissions Test	1.63dB
Uncertainty for Radiation Emission test in 3m chamber (below 30MHz)	3.5dB
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.74dB(Polarize: V)
	3.76dB(Polarize: H)
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz)	3.77dB(Polarize: V)
	3.80dB(Polarize: H)
Uncertainty for radio frequency	5.06×10^{-8}GHz
Uncertainty for conducted RF Power	0.40dB
Uncertainty for temperature	0.2℃
Uncertainty for humidity	1%
Uncertainty for DC and low frequency voltages	0.06%

3 Test Instruments list

Equipment	Manufacture	Model No.	Firmware version	Serial No.	Last cal.	Cal Interval
9*6*6 anechoic chamber	CHENYU	9*6*6	/	N/A	2020.09.02	3Year
Spectrum analyzer	ROHDE&SCHWARZ	FSV40-N	2.3	102137	2021.08.25	1Year
Spectrum analyzer	Agilent	N9020A	A.14.16	MY499100060	2021.08.25	1Year
Receiver	ROHDE&SCHWARZ	ESR	2.28 SP1	1316.3003K03-102082-Wa	2021.08.25	1Year
Receiver	R&S	ESCI	4.42 SP1	101165	2021.08.25	1Year
Bilog Antenna	Schwarzbeck	VULB 9168	/	VULB 9168#627	2021.08.30	2Year
Horn Antenna	SCHWARZBECK	BBHA 9120 D	/	2106	2021.08.30	2Year
Active Loop Antenna	SCHWARZBECK	FMZB 1519B	/	00059	2021.08.30	2Year
RF Cable	Resenberger	Cable 1	/	RE1	2021.08.25	1Year
RF Cable	Resenberger	Cable 2	/	RE2	2021.08.25	1Year
RF Cable	Resenberger	Cable 3	/	CE1	2021.08.25	1Year
Pre-amplifier	HP	HP8347A	/	2834A00455	2021.08.25	1Year
Pre-amplifier	Agilent	8449B	/	3008A02664	2021.08.25	1Year
L.I.S.N.#1	Schwarzbeck	NSLK8126	/	8126-466	2021.08.25	1Year
L.I.S.N.#2	ROHDE&SCHWARZ	ENV216	/	101043	2021.08.25	1 Year
Horn Antenna	SCHWARZBECK	BBHA9170	/	00946	2021.08.30	2 Year
Preamplifier	SKET	LNPA_1840-50	/	SK2018101801	2021.08.25	1 Year
Power Meter	Agilent	E9300A	/	MY41496628	2021.08.25	1 Year
Power Sensor	DARE	RPR3006W	/	15100041SNO91	2021.08.25	1 Year
Temp. & Humid. Chamber	Weihuang	WHTH-1000-40-880	/	100631	2022.04.22	1 Year
Switching Mode Power Supply	JUNKE	JK12010S	/	20140927-6	2021.08.25	1 Year
Adjustable attenuator	MWRFtest	N/A	/	N/A	N/A	N/A
10dB Attenuator	Mini-Circuits	DC-6G	/	N/A	N/A	N/A

4 System test configuration

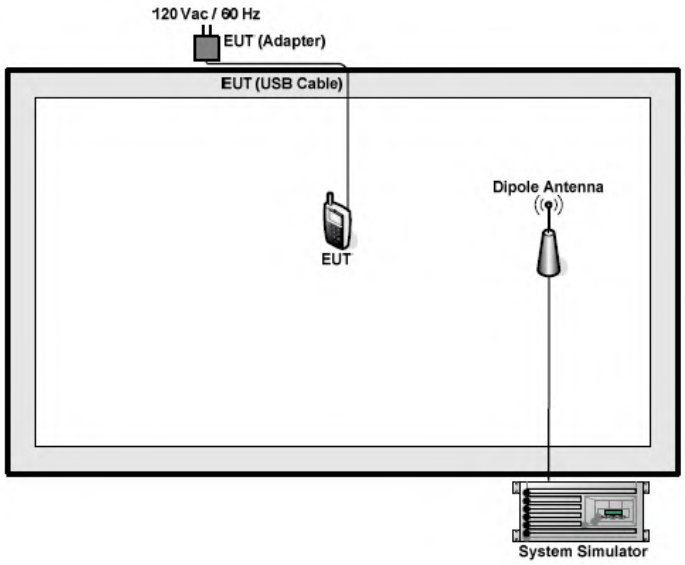
4.1 Test mode

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

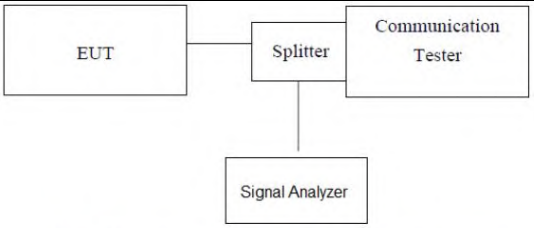
Test modes		
Band	Radiated	Conducted
GSM 850	■ GPRS 1 link ■ EPRS 1 link	■ GPRS 1 link ■ EGPRS 1 link
PCS 1900	■ GPRS 1 link ■ EGPRS 1 link	■ GPRS 1 link ■ EGPRS 1 link
WCDMA II	■ RMC 12.2Kbps link	■ RMC 12.2Kbps link
WCDMA Band IV	■ RMC 12.2Kbps link	■ RMC 12.2Kbps link
WCDMA Band V	■ RMC 12.2Kbps link	■ RMC 12.2Kbps link

Note: The maximum power levels are GPRS multi-slot class 12 mode for GMSK link, EGPRS multi-slot class 12 mode for 8PSK link, RMC12.2Kbps mode for WCDMA Band V/IV/II. Only these modes were used for all tests.

4.2 Configuration of Tested System



4.3 Conducted AV Output Power

Test Requirement:	FCC part22.913(a), FCC part24.232(b), FCC part27.50(d)(4)
Test Method:	FCC part2.1046, ANSI/TIA-603-E, ANSI C63.26 clause 5.2.4 FCC KDB971168 D01 v03r01 Section 5.2.
Limit:	GSM850, WCDMA Band V: 7W(ERP) PCS1900, WCDMA Band II: 2W(EIRP) WCDMA Band IV: 1W(EIRP)
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Procedure:	1. The transmitter output port was connected to base station. 2. The RF output of EUT was connected to the Signal Analyzer by RF cable and attenuator, the path loss was compensated to the results for each measurement. 3. Set EUT at maximum power through base station. 4. Select lowest, middle, and highest channels for each band and different modulation. 5. Measure the maximum frame average power.
Test Instruments:	Refer to section 3 for details
Test mode:	Refer to section 4.1 for details
Test results:	Pass

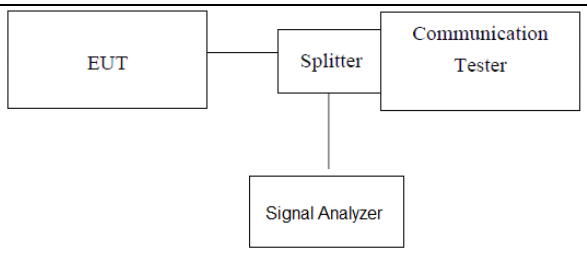
Measurement Data

Conducted Burst Power (dBm)						
Band	GSM850			PCS1900		
Channel	128	190	251	512	661	810
Frequency	824.20	836.60	848.80	1850.20	1880.00	1909.80
GPRS (GMSK, 1 TX slot)	29.85	29.92	**29.98**	27.57	27.64	**27.70**
GPRS (GMSK, 2 TX slot)	29.74	29.83	29.88	26.48	26.57	26.62
GPRS (GMSK, 3 TX slot)	29.76	29.84	29.89	24.83	24.91	24.96
GPRS (GMSK, 4 TX slot)	28.53	28.59	28.63	22.55	22.61	22.65
EGPRS (8PSK, 1 TX slot)	25.26	25.33	25.39	26.02	26.09	26.15
EGPRS (8PSK, 2 TX slot)	22.77	22.82	22.85	21.95	22.00	22.03
EGPRS (8PSK, 3 TX slot)	22.06	22.09	22.16	20.04	20.07	20.14
EGPRS (8PSK, 4 TX slot)	20.06	20.12	20.17	19.20	19.26	19.31

Burst Average Power (dBm)						
Band	WCDMA Band II			WCDMA Band V		
Channel	9262	9400	9538	4132	4182	4233
Frequency	1852.4	1880.0	1907.6	826.4	836.4	846.6
RMC 12.2Kbps	21.94	22.11	**22.07**	22.93	**23.10**	23.06
HSDPA Subtest-1	21.79	21.88	21.93	20.40	20.49	20.54
HSDPA Subtest-2	21.33	21.41	21.46	21.24	21.32	21.37
HSDPA Subtest-3	21.86	21.92	21.96	20.18	20.24	20.28
HSDPA Subtest-4	21.21	21.28	21.34	20.35	20.42	20.48
HSUPA Subtest-1	22.22	22.27	22.30	20.99	21.04	21.07
HSUPA Subtest-2	21.00	21.03	21.10	22.38	22.41	22.48
HSUPA Subtest-3	21.64	21.70	21.75	21.27	21.33	21.38
HSUPA Subtest-4	21.63	21.68	21.74	20.99	21.04	21.10
HSUPA Subtest-5	21.10	21.14	21.19	21.94	21.98	22.03

Burst Average Power (dBm)			
Band	WCDMA Band IV		
Channel	1312	1450	1513
Frequency	1712.4	1740.0	1752.6
RMC 12.2Kbps	23.04	23.17	**23.56**
HSDPA Subtest-1	23.42	23.34	22.70
HSDPA Subtest-2	23.01	22.83	22.67
HSDPA Subtest-3	22.70	22.89	22.90
HSDPA Subtest-4	22.60	22.28	22.38
HSUPA Subtest-1	22.03	22.51	22.08
HSUPA Subtest-2	22.70	22.04	22.21
HSUPA Subtest-3	21.79	21.64	21.76
HSUPA Subtest-4	21.55	21.52	21.63
HSUPA Subtest-5	22.03	21.46	21.54

4.4 Peak-to-Average Ratio

Test Requirement:	Part 22.913(d), FCC part24.232(d), FCC part27.50(d)(5)
Test Method:	FCC part2.1046, ANSI/TIA-603-E, ANSI C63.26 Clause 5.2.3.4 FCC KDB971168 D01 v03r01 Section 5.7
Limit:	13db
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Procedure:	1. The transmitter output port was connected to base station. 2. The RF output of EUT was connected to the Signal Analyzer by RF cable and attenuator, the path loss was compensated to the results for each measurement. 3. Set EUT at maximum power through base station. 4. Select lowest, middle, and highest channels for each band and different modulation. 5. Measure the maximum burst average power. 6. Record the maximum peak-to-average ratio value.
Test Instruments:	Refer to section 3 for details
Test mode:	Refer to section 4.1 for details
Test results:	Pass

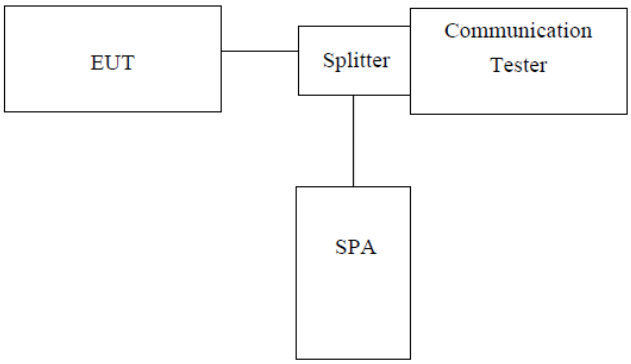
Measurement data

Test mode	Peak to Average Ratio （dB）			Limit （dB）	Result
	Low Ch.	Middle Ch.	High Ch.		
GSM/TM1/GSM850(GPRS)	10.92	10.90	10.91	13	PASS
GSM/TM1/GSM1900(GPRS)	11.07	11.08	11.04	13	PASS

Test mode	Peak to Average Ratio （dB）			Limit （dB）	Result
	Low Ch.	Middle Ch.	High Ch.		
GSM/TM1/GSM850(EGPRS)	10.52	10.90	10.89	13	PASS
GSM/TM1/GSM1900(EGPRS)	10.85	10.34	11.07	13	PASS

Test mode	Peak to Average Ratio (dB)			Limit (dB)	Result
	Low Ch.	Middle Ch.	High Ch.		
WCDMA Band II	3.14	3.14	3.17	13	PASS
WCDMA Band IV	3.14	3.16	3.15		
WCDMA Band V	3.19	3.15	3.09		

4.5 Occupy Bandwidth

Test Requirement:	FCC part22.913(a), FCC part24.232(b), FCC part27.53(h)
Test Method:	KDB 971168 D01 v03r1 clause 4, FCC part2.1049, ANSI/TIA-603-E, ANSI C63.26 clause 5.4, RSS-Gen Section 6.7.
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Procedure:	1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer 2. RBW was set to about 1% of emission BW, VBW= 3 times RBW. 3. -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.
Test Instruments:	Refer to section 3 for details
Test mode:	Refer to section 4.1 for details
Test results:	Pass

Measurement Data

EUT Mode	Channel	Frequency (MHz)	99% Occupy bandwidth (KHz)	-26dB bandwidth (KHz)
GSM 850 (GPRS 1 link)	128	824.20	237.81	308.3
	190	836.60	239.79	306.1
	251	848.80	249.93	311.4
GSM 850 (EGPRS 1 link)	128	824.20	238.18	304.5
	190	836.60	241.89	307.6
	251	848.80	236.77	304.4
PCS 1900 (GPRS 1 link)	512	1850.20	235.60	291.7
	661	1880.00	251.32	313.5
	810	1909.80	241.05	314.0
PCS 1900 (EGPRS 1 link)	512	1850.20	239.86	313.8
	661	1880.00	250.18	303.3
	810	1909.80	242.63	316.3
WCDMA Band V (RMC 12.2Kbps link)	4132	826.40	4141.1	4720
	4182	836.40	4138.3	4712
	4233	846.60	4136.9	4716
WCDMA Band II (RMC 12.2Kbps link)	9262	1852.4	4139.9	4713
	9400	1880.0	4127.3	4730
	9538	1907.6	4125.6	4737
WCDMA Band IV (RMC 12.2Kbps link)	1312	1712.4	4121.8	4700
	1450	1740.0	4146.7	4707
	1513	1752.6	4137.2	4710

Test plot as follows:

GSM 850 (GPRS 1 link)	GSM 850 (EGPRS 1 link)

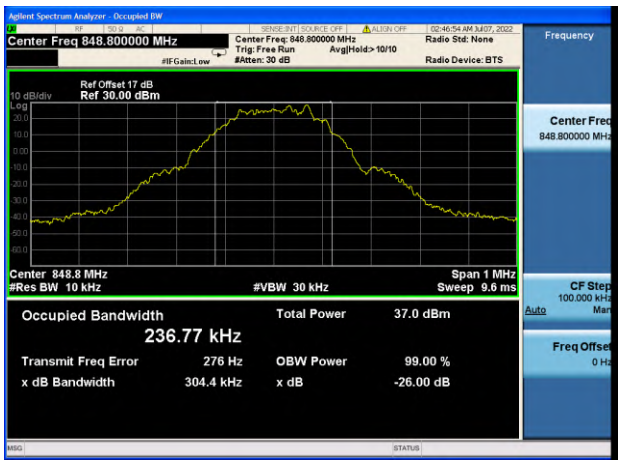
Lowest channel

Lowest channel

Middle channel

Middle channel

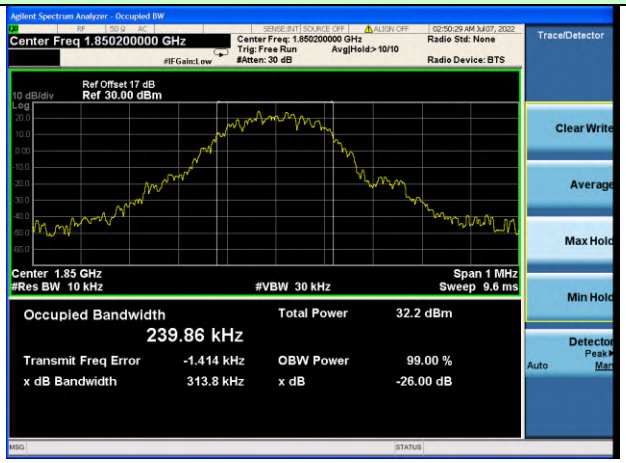
Highest channel



Highest channel

PCS 1900 (GPRS 1 link)	PCS 1900 (EGPRS 1 link)

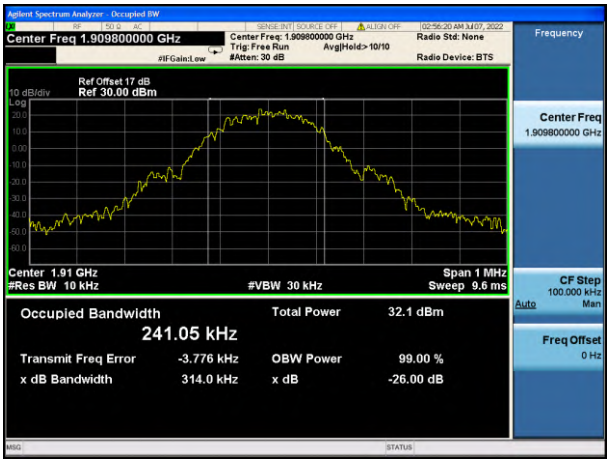
Lowest channel



Lowest channel

Middle channel

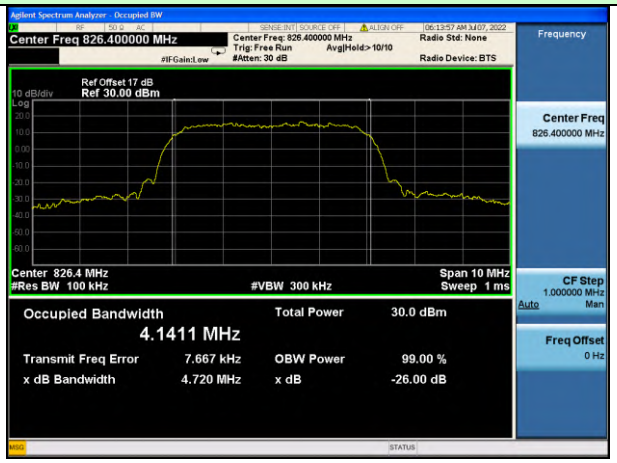
Middle channel



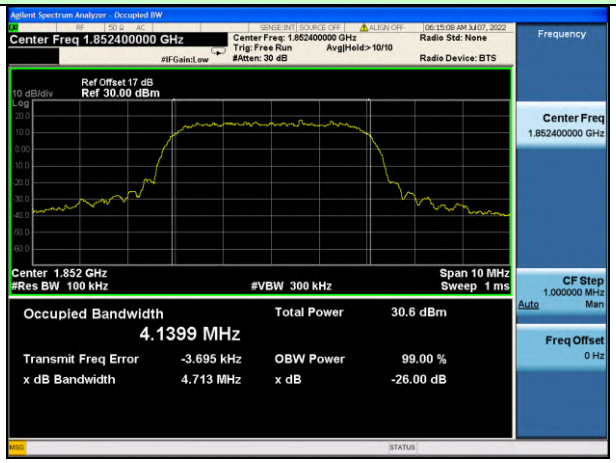
Highest channel

Highest channel

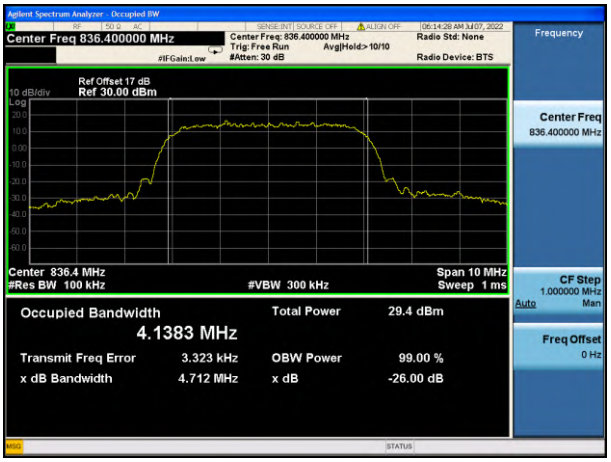
WCDMA Band V (RMC 12.2Kbps link)	WCDMA Band II (RMC 12.2Kbps link)



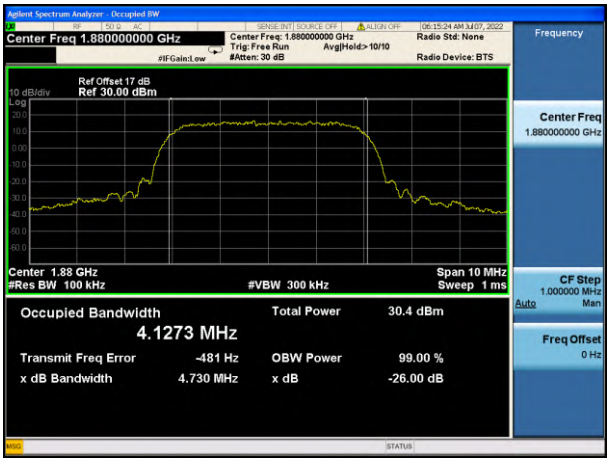
Lowest channel



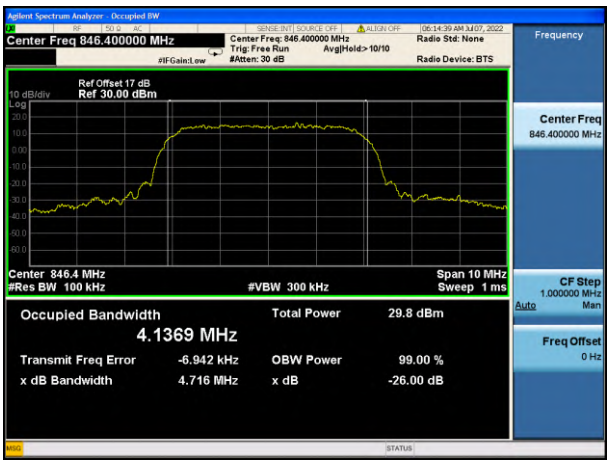
Lowest channel



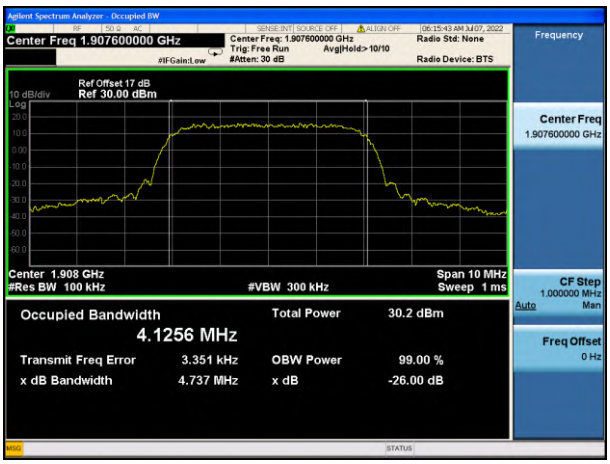
Middle channel



Middle channel

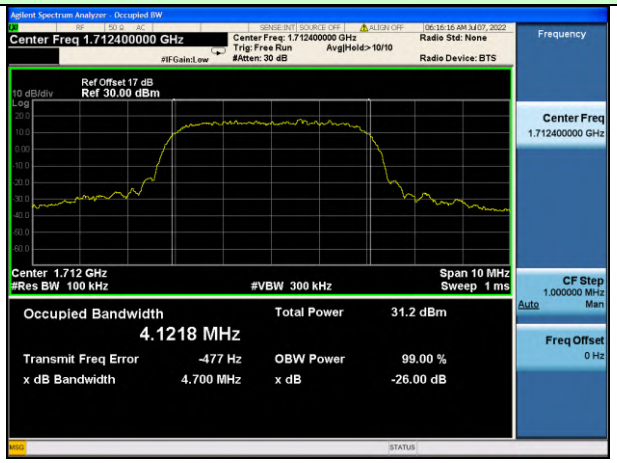


Highest channel

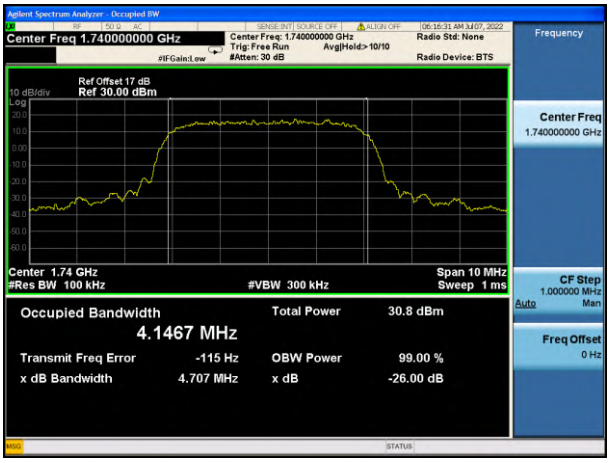


Highest channel

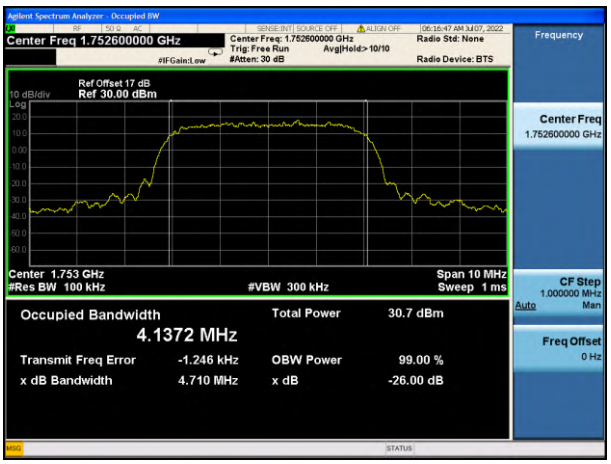
WCDMA Band IV (RMC 12.2Kbps link)	



Lowest channel



Middle channel

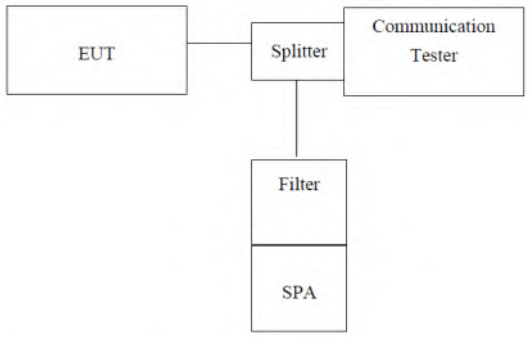


Highest channel

4.6 MODULATION CHARACTERISTIC

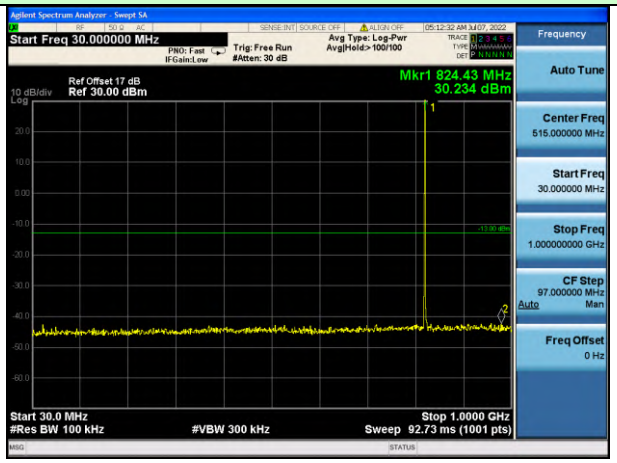
According to FCC § 2.1047(d), Part 22H, 24E & 27C, there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

4.7 Out of band emission at antenna terminals

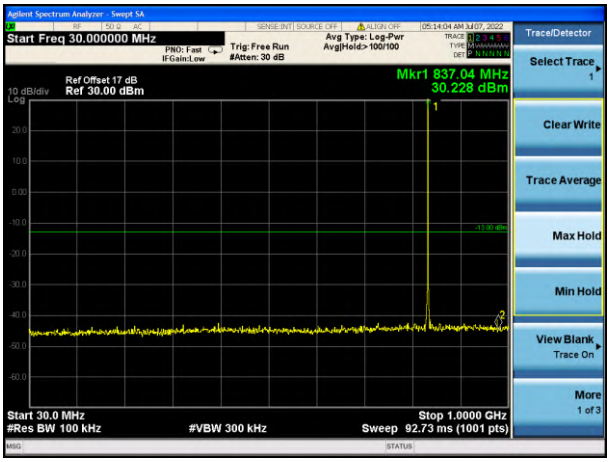
Test Requirement:	FCC part22.917(a), FCC part24.238(a), FCC part27.53(h)
Test Method:	KDB 971168 D01 v03r1 clause 6, FCC part2.1051, ANSI/TIA-603-E, ANSI C63.26 clause 5.7
Limit:	-13dBm
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Procedure:	1 The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. 2 The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic. 3 For the out of band: Set the RBW= 1MHz, VBW = 3MHz, Start=30MHz, Stop= 10th harmonic. 4 Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions.
Test Instruments:	Refer to section 3 for details
Test mode:	Refer to section 4.1 for details
Test results:	Pass

Test plot as follows:

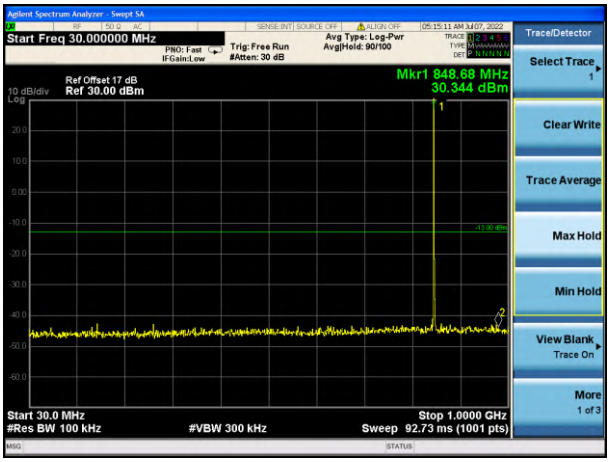
Test Mode: Traffic mode	GSM 850 (GPRS 1 link)



Lowest channel

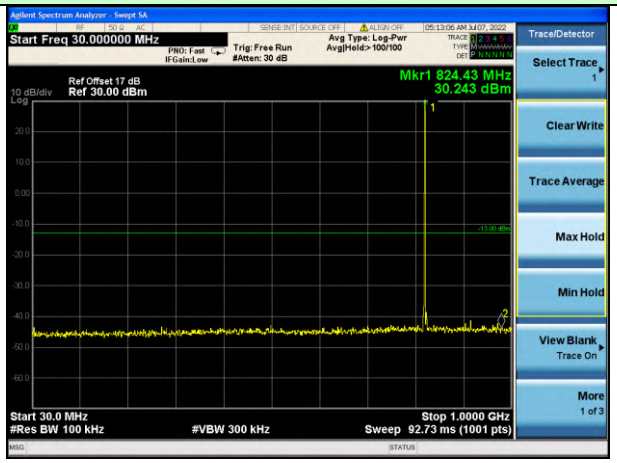


Middle channel

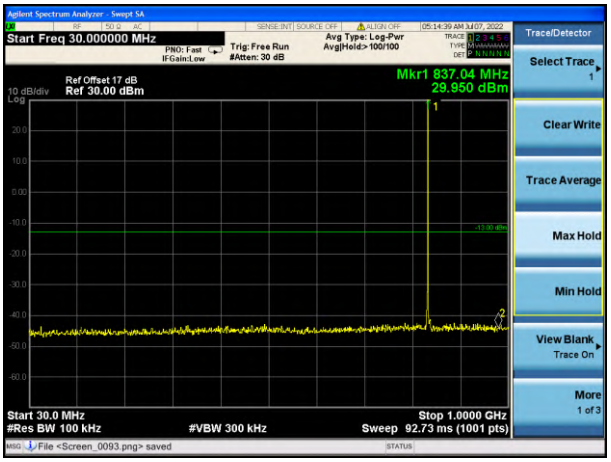


Highest channel

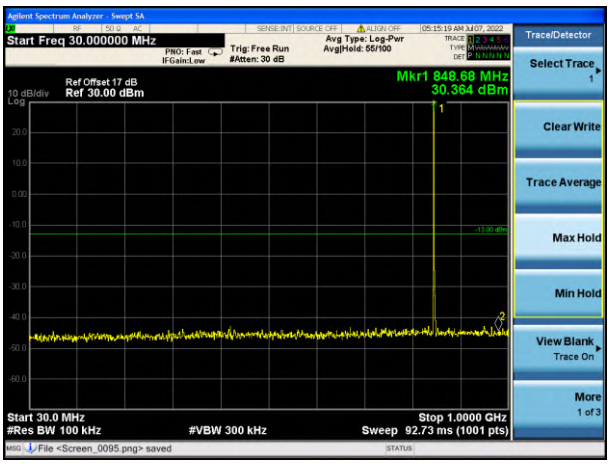
Test Mode: Traffic mode	GSM 850 (EGPRS 1 link)



Lowest channel

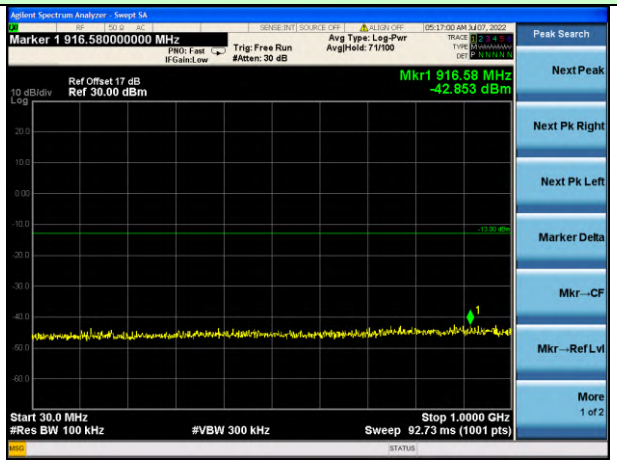


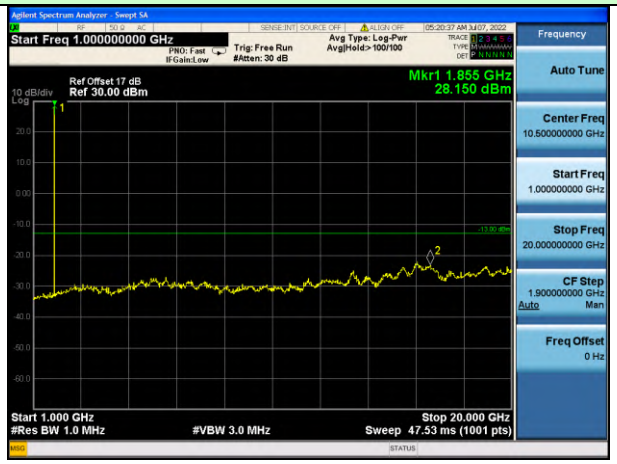
Middle channel



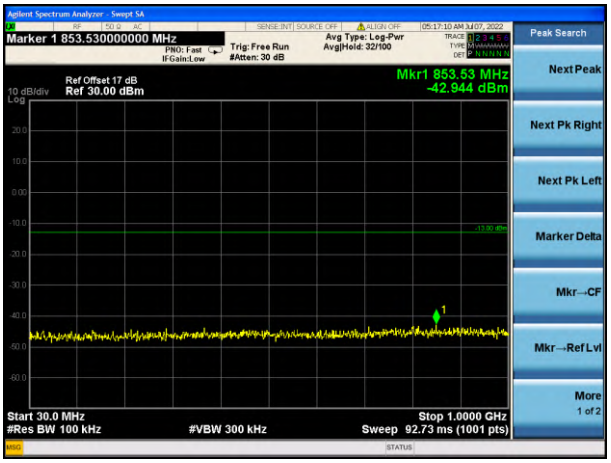
Highest channel

Test Mode: Traffic mode	
PCS1900 (GPRS 1 link)	

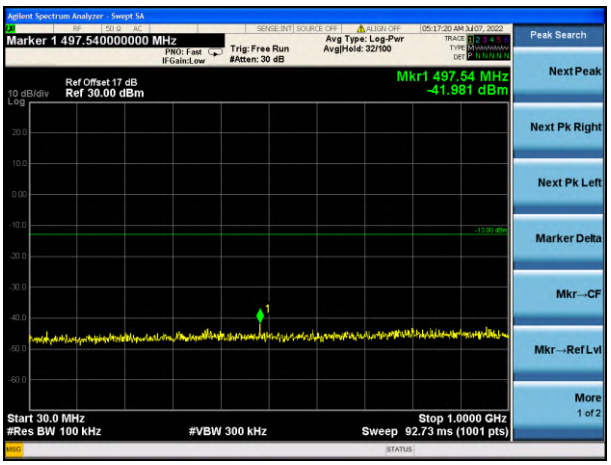




Lowest channel

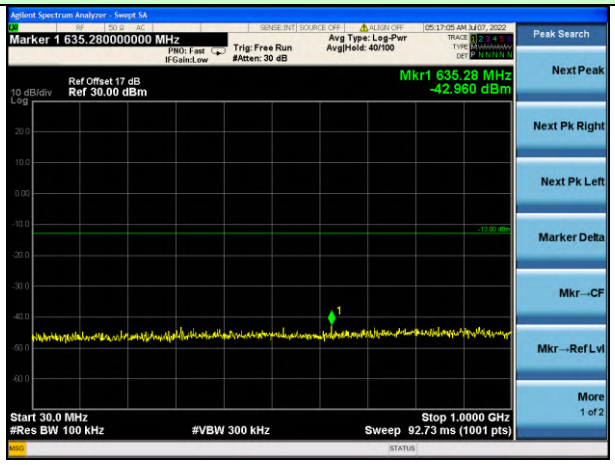


Middle channel

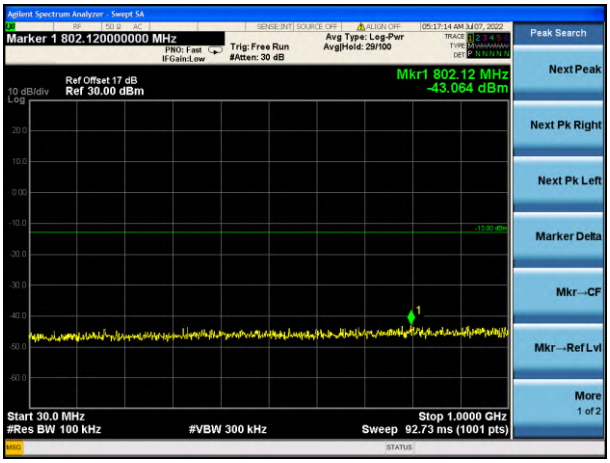


Highest channel

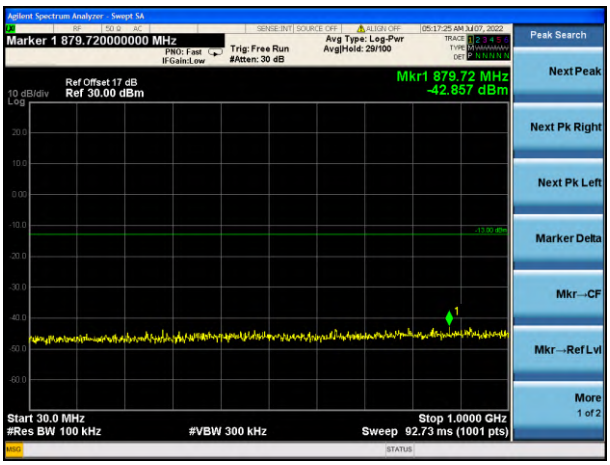
Test Mode: Traffic mode	
PCS1900 (EGPRS 1 link)	



Lowest channel

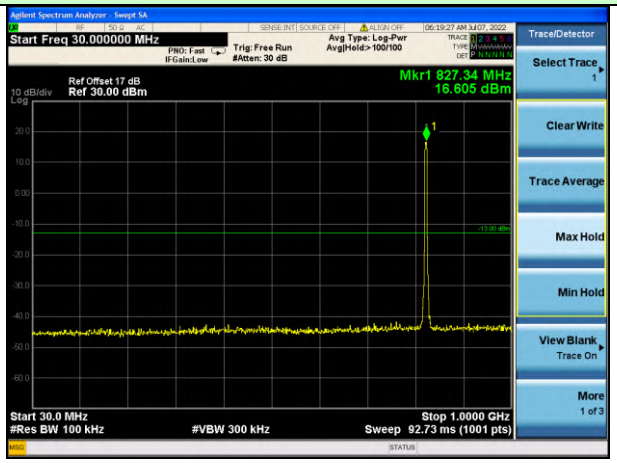


Middle channel

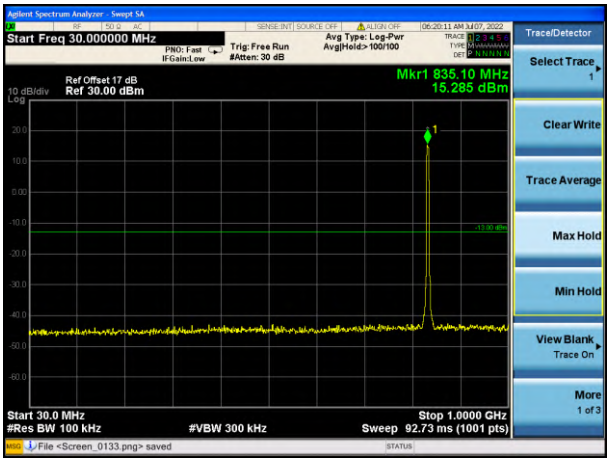


Highest channel

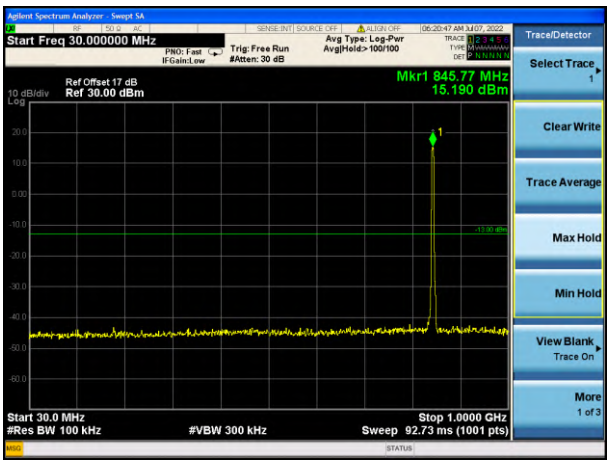
Test Mode: Traffic mode	WCDMA Band V (RMC 12.2Kbps link)



Lowest channel

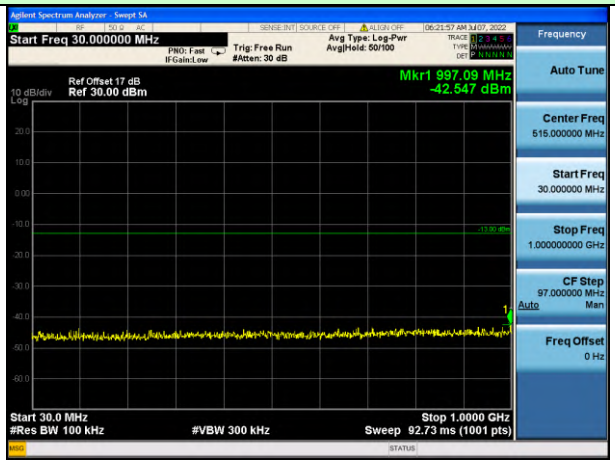


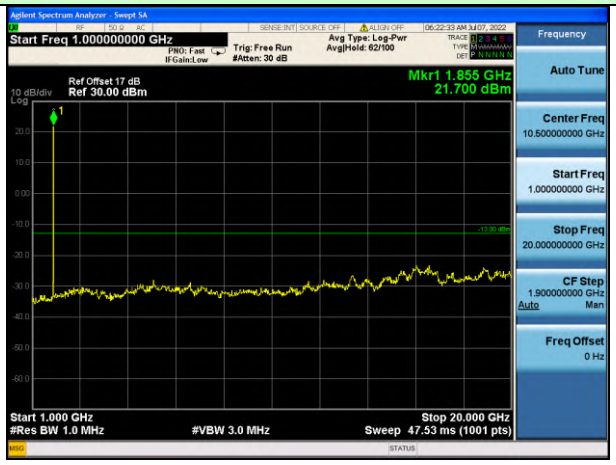
Middle channel



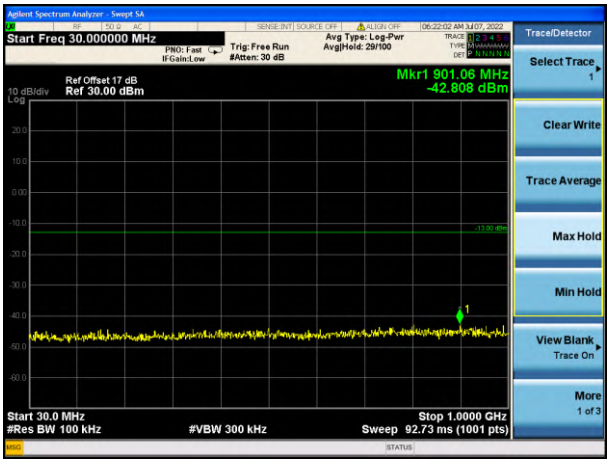
Highest channel

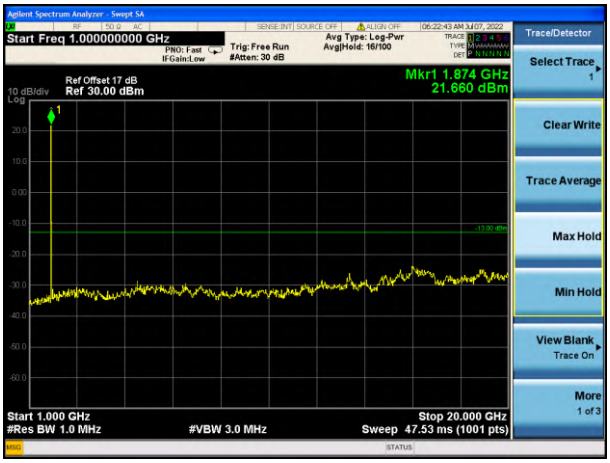
Test Mode: Traffic mode	WCDMA Band II (RMC 12.2Kbps link)



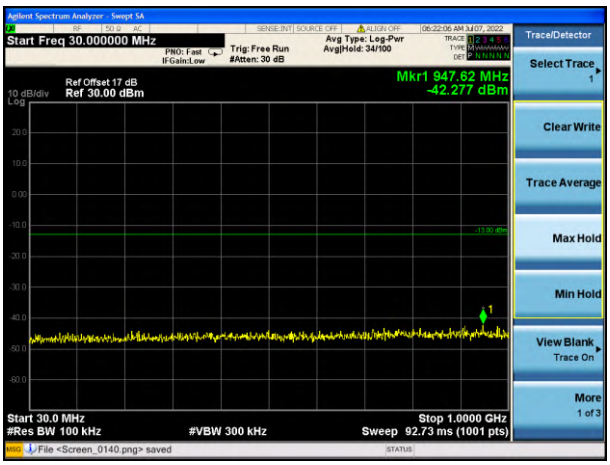


Lowest channel



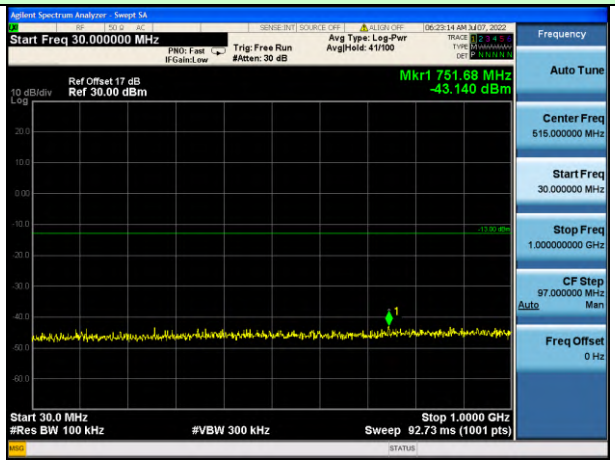


Middle channel

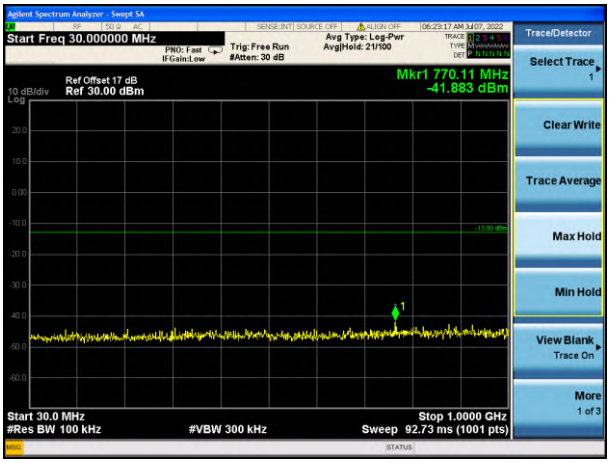


Highest channel

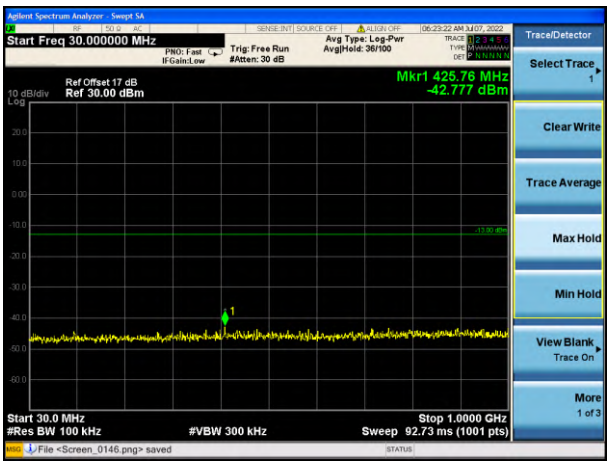
Test Mode: Traffic mode	WCDMA Band IV (RMC 12.2Kbps link)



Lowest channel

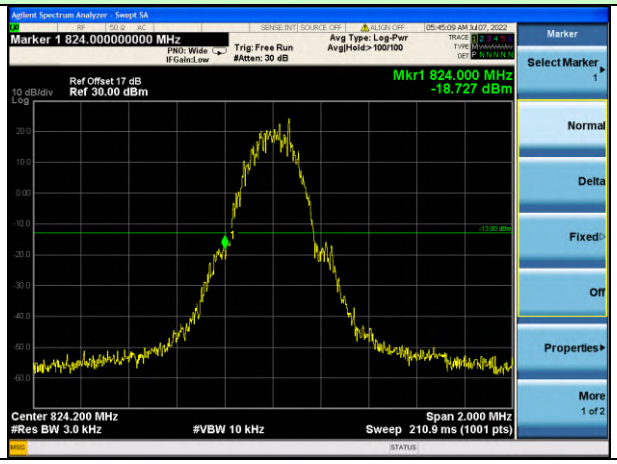
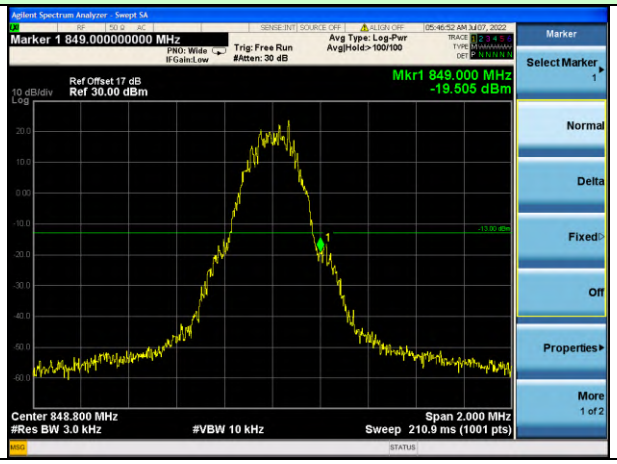


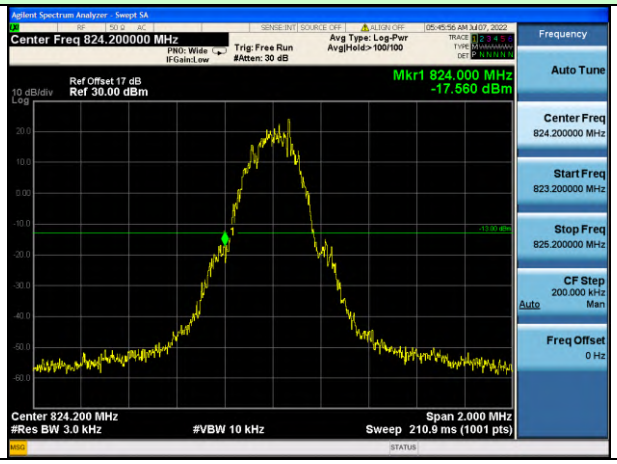
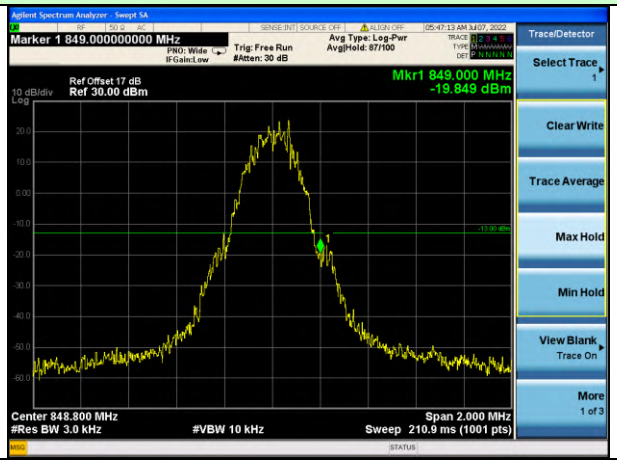
Middle channel

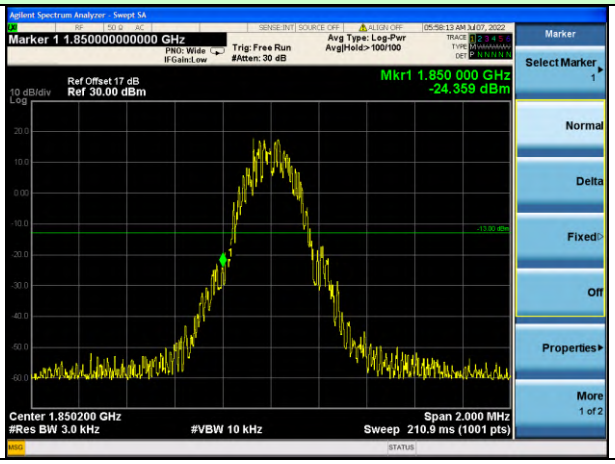
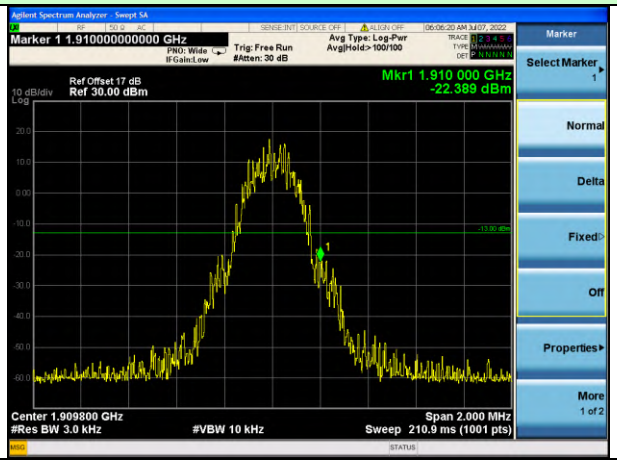


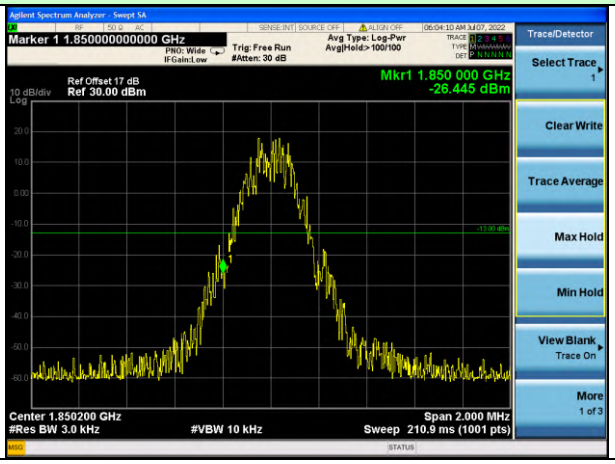
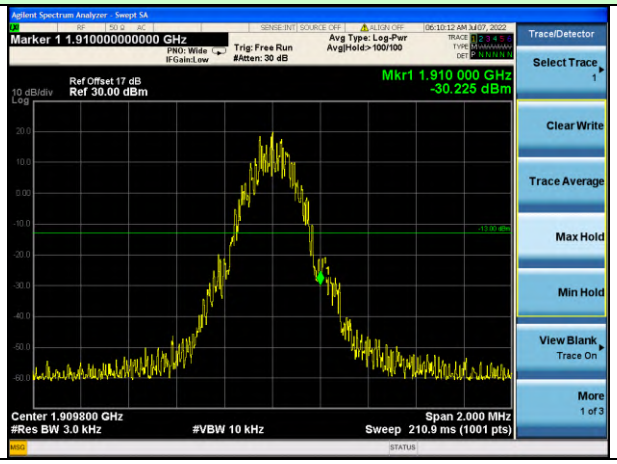
Highest channel

Band Edge:

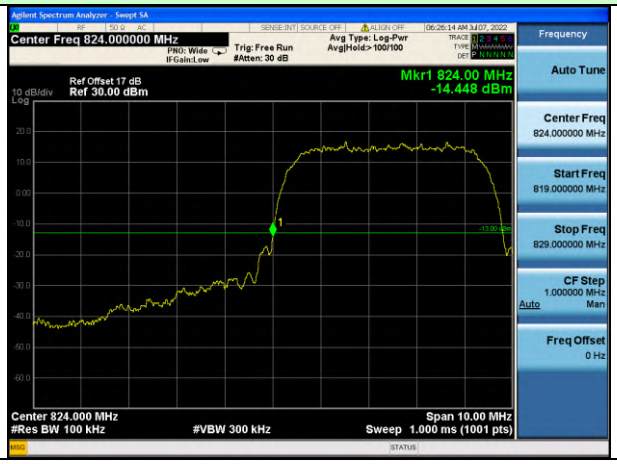
Test Mode: Traffic mode	GSM850 (GPRS 1 link)
	
Lowest channel	Highest channel

Test Mode: Traffic mode	GSM850 (EGPRS 1 link)
	
Lowest channel	Highest channel

Test Mode: Traffic mode	PCS1900 (GPRS 1 link)
	
Lowest channel	Highest channel

Test Mode: Traffic mode	PCS1900 (EGPRS 1 link)
	
Lowest channel	Highest channel

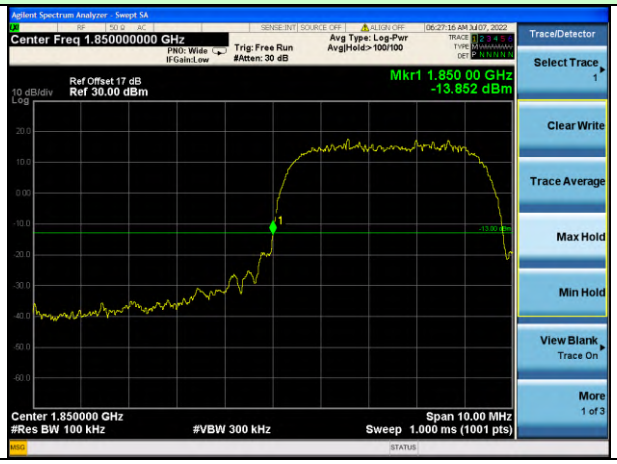
Test Mode: Traffic mode	WCDMA Band V (RMC 12.2Kbps link)



Lowest channel

Highest channel

Test Mode: Traffic mode	WCDMA Band II (RMC 12.2Kbps link)



Lowest channel

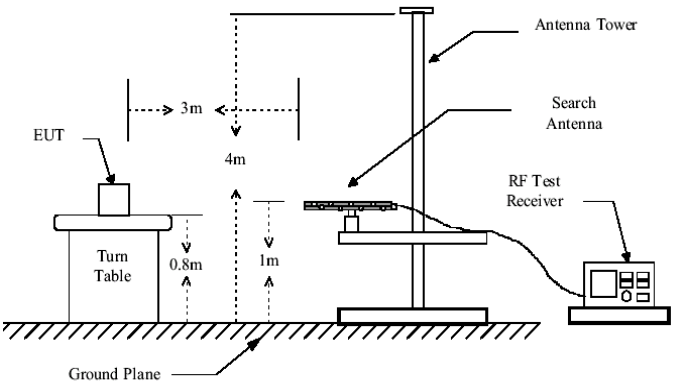
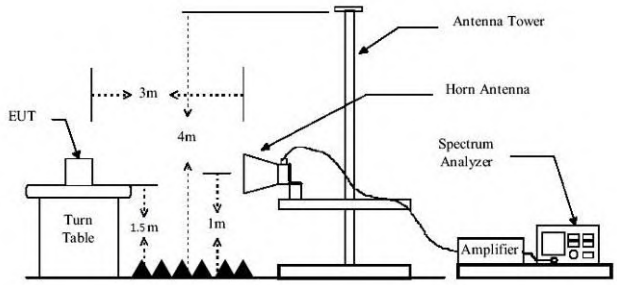
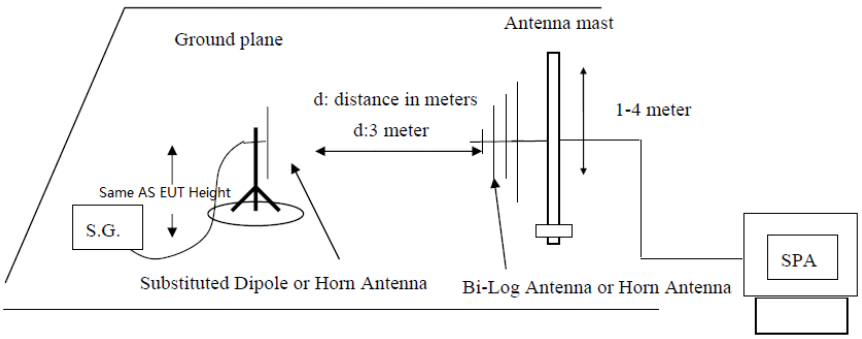
Highest channel

Test Mode: Traffic mode	WCDMA Band IV (RMC 12.2Kbps link)

Lowest channel

Highest channel

4.8 ERP, EIRP Measurement

Test Requirement:	FCC part22.913(a), FCC part24.232(b), FCC part27.50(d)(4)
Test Method:	KDB 971168 D01 v03r1 clause 5.8, FCC part2.1051, ANSI/TIA-603-E, ANSI C63.26 clause 5.7
Limit:	GSM850, WCDMA Band V: 7W(ERP) PCS1900, WCDMA Band II: 2W(EIRP) WCDMA Band II: 1W(EIRP)
Test setup:	Below 1GHz  Above 1GHz  Substituted method: 

Test Procedure:	1. The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. 2. During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated. 3. ERP in frequency band 824.2 –848.80.8MHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated asfollows: ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable Loss (dB) 4. EIRP in frequency band 1712.6-1752.4, 1850.2 –1909.8MHz were measured using a substitution method. The EUT was replaced by or horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows: EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable Loss (dB)
Test Instruments:	Refer to section 3 for details
Test mode:	Refer to section 4.1 for details
Test results:	Pass

Measurement Data

EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
GSM850 (GPRS 1 link)	Lowest	H	V	26.68	38.45	Pass
			H	31.25		
		E1	V	27.27		
			H	29.76		
		E2	V	26.81		
			H	30.84		
	Middle	H	V	27.10	38.45	Pass
			H	**32.24**		
		E1	V	26.82		
			H	31.61		
		E2	V	26.55		
			H	30.06		
	Highest	H	V	27.90	38.45	Pass
			H	30.04		
		E1	V	28.33		
			H	31.35		
		E2	V	26.80		
			H	30.51		

EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
GSM850 (EGPRS 1 link)	Lowest	H	V	26.79	38.45	Pass
			H	29.95		
		E1	V	27.62		
			H	29.70		
		E2	V	25.66		
			H	28.00		
	Middle	H	V	25.52	38.45	Pass
			H	29.36		
		E1	V	25.23		
			H	29.58		
		E2	V	25.05		
			H	27.34		
	Highest	H	V	27.42	38.45	Pass
			H	29.41		
		E1	V	26.53		
			H	28.47		
		E2	V	24.55		
			H	28.55		

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP (dBm)	Limit (dBm)	Result
PCS1900 (GPRS 1 link)	Lowest	H	V	21.29	33.01	Pass
			H	24.94		
		E1	V	20.26		
			H	24.20		
		E2	V	23.13		
			H	27.28		
	Middle	H	V	22.99	33.01	Pass
			H	26.39		
		E1	V	21.20		
			H	24.48		
		E2	V	21.20		
			H	23.91		
	Highest	H	V	24.58	33.01	Pass
			H	**27.89**		
		E1	V	24.60		
			H	27.71		
		E2	V	23.21		
			H	25.35		

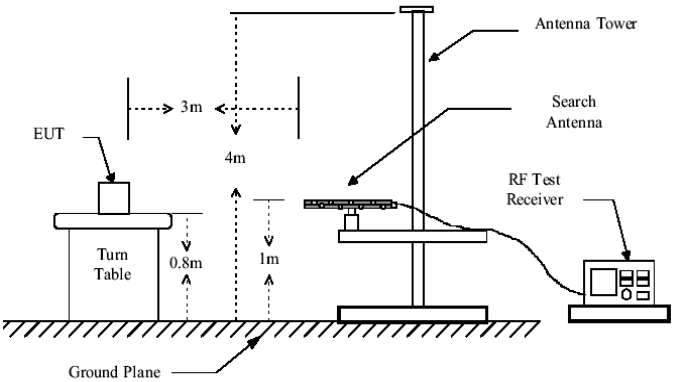
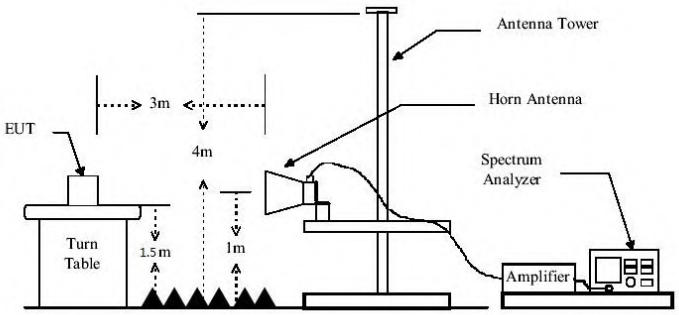
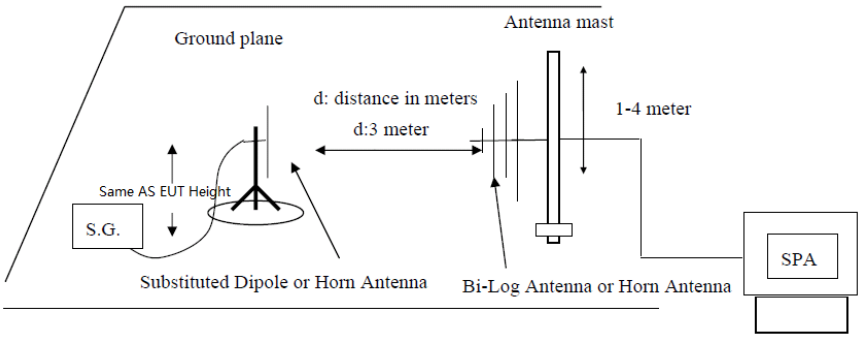
EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP (dBm)	Limit (dBm)	Result
PCS1900 (EGPRS 1 link)	Lowest	H	V	20.60	33.01	Pass
			H	23.39		
		E1	V	18.86		
			H	23.35		
		E2	V	22.36		
			H	26.27		
	Middle	H	V	21.81	33.01	Pass
			H	25.91		
		E1	V	20.14		
			H	24.25		
		E2	V	20.50		
			H	23.26		
	Highest	H	V	23.64	33.01	Pass
			H	27.33		
		E1	V	23.42		
			H	26.32		
		E2	V	21.59		
			H	20.60		

EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
WCDMA Band V	Lowest	H	V	22.36	38.45	Pass
			H	25.37		
		E1	V	22.54		
			H	25.30		
		E2	V	22.36		
			H	24.93		
	Middle	H	V	22.32	38.45	Pass
			H	**26.63**		
		E1	V	22.36		
			H	25.26		
		E2	V	20.68		
			H	24.19		
	Highest	H	V	23.07	38.45	Pass
			H	26.21		
		E1	V	23.29		
			H	25.04		
		E2	V	23.81		
			H	25.22		

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
WCDMA Band II	Lowest	H	V	22.97	33.01	Pass
			H	24.81		
		E1	V	21.61		
			H	24.44		
		E2	V	22.63		
			H	24.54		
	Middle	H	V	20.88	33.01	Pass
			H	**26.10**		
		E1	V	23.13		
			H	24.51		
		E2	V	20.61		
			H	24.24		
	Highest	H	V	23.45	33.01	Pass
			H	25.80		
		E1	V	23.49		
			H	24.65		
		E2	V	23.30		
			H	25.96		

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
WCDMA Band IV	Lowest	H	V	22.19	33.01	Pass
			H	26.17		
		E1	V	22.01		
			H	24.54		
		E2	V	23.00		
			H	25.41		
	Middle	H	V	22.36	33.01	Pass
			H	**26.25**		
		E1	V	21.16		
			H	24.08		
		E2	V	20.42		
			H	24.80		
	Highest	H	V	23.00	33.01	Pass
			H	26.05		
		E1	V	23.57		
			H	25.80		
		E2	V	24.06		
			H	25.33		

4.9 Field strength of spurious radiation measurement

Test Requirement:	FCC part22.917(a), FCC part24.238(a), FCC part27.53(h)
Test Method:	KDB 971168 D01 v03r1 clause 7, FCC part2.1051, ANSI/TIA-603-E, ANSI C63.26 clause 5.5
Limit:	-13dBm
Test setup:	Below 1GHz  Above 1GHz  Substituted method: 

Test Procedure:	1. The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. 2. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations. 3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method. 4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency. ERP / EIRP = S.G. output (dBm) + Antenna Gain(dB/dBi) – Cable Loss (dB)
Test Instruments:	Refer to section 3 for details
Test mode:	Refer to section 4.1 for details
Test results:	Pass

Measurement Data

Test mode:	GSM850(GPRS)		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1648.40	Vertical	-45.19	-13.00	Pass
2472.60	V	-45.25		
3296.80	V	-45.60		
4121.00	V	-46.83		
4945.20	V	-46.03		
1648.40	Horizontal	-41.93	-13.00	Pass
2472.60	H	-41.84		
3296.80	H	-40.24		
4121.00	H	-38.11		
4945.20	H	-36.89		
Test mode:	**GSM850(GPRS)**		**Test channel:**	**Middle**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1673.20	Vertical	-45.21	-13.00	Pass
2509.80	V	-44.53		
3346.40	V	-45.82		
4183.00	V	-46.10		
5019.60	V	-45.79		
1673.20	Horizontal	-41.86	-13.00	Pass
2509.80	H	-41.91		
3346.40	H	-40.02		
4183.00	H	-37.73		
5019.60	H	-36.55		
Test mode:	**GSM850(GPRS)**		**Test channel:**	**Highest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1697.60	Vertical	-44.84	-13.00	Pass
2546.40	V	-45.36		
3395.20	V	-45.31		
4244.00	V	-46.58		
5092.80	V	-45.16		
1697.60	Horizontal	-42.21	-13.00	Pass
2546.40	H	-41.46		
3395.20	H	-40.00		
4244.00	H	-38.24		
5092.80	H	-36.89		

Remark :

1. The emission behaviour belongs to narrowband spurious emission.
2. Remark"---" means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are 20dB lower than the limit and not show in test report.

Test mode:	GSM850(EGPRS)		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1648.40	Vertical	-46.21	-13.00	Pass
2472.60	V	-45.70		
3296.80	V	-43.05		
4121.00	V	-45.05		
4945.20	V	-43.81		
1648.40	Horizontal	-43.09	-13.00	Pass
2472.60	H	-42.83		
3296.80	H	-41.20		
4121.00	H	-39.32		
4945.20	H	-40.21		
Test mode:	**GSM850(EGPRS)**		**Test channel:**	**Middle**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1673.20	Vertical	-45.44	-13.00	Pass
2509.80	V	-46.15		
3346.40	V	-46.72		
4183.00	V	-47.67		
5019.60	V	-46.83		
1673.20	Horizontal	-43.27	-13.00	Pass
2509.80	H	-42.57		
3346.40	H	-41.71		
4183.00	H	-39.50		
5019.60	H	-40.44		
Test mode:	**GSM850(EGPRS)**		**Test channel:**	**Highest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1697.60	Vertical	-45.99	-13.00	Pass
2546.40	V	-46.41		
3395.20	V	-46.80		
4244.00	V	-47.06		
5092.80	V	-40.56		
1697.60	Horizontal	-42.74	-13.00	Pass
2546.40	H	-42.63		
3395.20	H	-41.59		
4244.00	H	-39.09		
5092.80	H	-40.99		

Remark :

1. The emission behaviour belongs to narrowband spurious emission.
2. Remark"---" means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are 20dB lower than the limit and not show in test report.

Test mode:	PCS1900(GPRS)		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3700.40	Vertical	-44.80	-13.00	Pass
5550.60	V	-47.06		
7400.80	V	-46.23		
9251.00	V	-44.57		
11101.20	V	-34.91		
3700.40	Horizontal	-42.56	-13.00	Pass
5550.60	H	-38.66		
7400.80	H	-38.70		
9251.00	H	-38.99		
11101.20	H	-35.29		
Test mode:	**PCS1900(GPRS)**		**Test channel:**	**Middle**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3760.00	Vertical	-44.96	-13.00	Pass
5640.00	V	-47.81		
7520.00	V	-46.00		
9400.00	V	-44.61		
11280.00	V	-35.03		
3760.00	Horizontal	-42.60	-13.00	Pass
5640.00	H	-38.95		
7520.00	H	-38.78		
9400.00	H	-38.51		
11280.00	H	-35.86		
Test mode:	**PCS1900(GPRS)**		**Test channel:**	**Highest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3819.60	Vertical	-44.86	-13.00	Pass
5729.40	V	-47.65		
7639.20	V	-45.99		
9549.00	V	-44.85		
11458.80	V	-35.45		
3819.60	Horizontal	-42.89	-13.00	Pass
5729.40	H	-38.78		
7639.20	H	-38.50		
9549.00	H	-38.45		
11458.80	H	-35.43		

Remark：

1. The emission behaviour belongs to narrowband spurious emission.
2. Remark”---“ means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are 20dB lower than the limit and not show in test report.

Test mode:	PCS1900(EGPRS)		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3700.40	Vertical	-43.52	-13.00	Pass
5550.60	V	-46.73		
7400.80	V	-45.15		
9251.00	V	-43.74		
11101.20	V	-33.71		
3700.40	Horizontal	-42.15	-13.00	Pass
5550.60	H	-38.16		
7400.80	H	-37.57		
9251.00	H	-37.81		
11101.20	H	-34.70		
Test mode:	**PCS1900(EGPRS)**		**Test channel:**	**Middle**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3760.00	Vertical	-43.17	-13.00	Pass
5640.00	V	-46.42		
7520.00	V	-45.47		
9400.00	V	-43.82		
11280.00	V	-33.67		
3760.00	Horizontal	-42.30	-13.00	Pass
5640.00	H	-38.47		
7520.00	H	-37.32		
9400.00	H	-37.22		
11280.00	H	-34.48		
Test mode:	**PCS1900(EGPRS)**		**Test channel:**	**Highest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3819.60	Vertical	-43.92	-13.00	Pass
5729.40	V	-46.01		
7639.20	V	-45.32		
9549.00	V	-43.99		
11458.80	V	-33.59		
3819.60	Horizontal	-42.30	-13.00	Pass
5729.40	H	-37.93		
7639.20	H	-38.02		
9549.00	H	-37.56		
11458.80	H	-34.98		

Remark：

1. The emission behaviour belongs to narrowband spurious emission.
2. Remark"---" means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are 20dB lower than the limit and not show in test report.

Test mode:	WCDMA Band V		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1652.80	Vertical	-46.75	-13.00	Pass
2479.20	V	-47.45		
3305.60	V	-47.31		
4132.00	V	-46.32		
4958.40	V	-45.74		
1652.80	Horizontal	-42.42	-13.00	Pass
2479.20	H	-42.30		
3305.60	H	-40.76		
4132.00	H	-40.15		
4958.40	H	-40.94		
Test mode:	**WCDMA Band V**		**Test channel:**	**Middle**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1672.80	Vertical	-47.20	-13.00	Pass
2509.20	V	-47.69		
3345.60	V	-47.76		
4182.00	V	-46.49		
5018.40	V	-46.19		
1672.80	Horizontal	-42.90	-13.00	Pass
2509.20	H	-41.70		
3345.60	H	-40.74		
4182.00	H	-40.27		
5018.40	H	-40.18		
Test mode:	**WCDMA Band V**		**Test channel:**	**Highest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1693.20	Vertical	-47.19	-13.00	Pass
2539.80	V	-47.06		
3386.40	V	-47.48		
4233.00	V	-46.56		
5079.60	V	-46.29		
1693.20	Horizontal	-42.95	-13.00	Pass
2539.80	H	-42.40		
3386.40	H	-40.87		
4233.00	H	-39.85		
5079.60	H	-40.55		

Remark :

1. The emission behaviour belongs to narrowband spurious emission.
2. Remark"---" means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are 20dB lower than the limit and not show in test report.

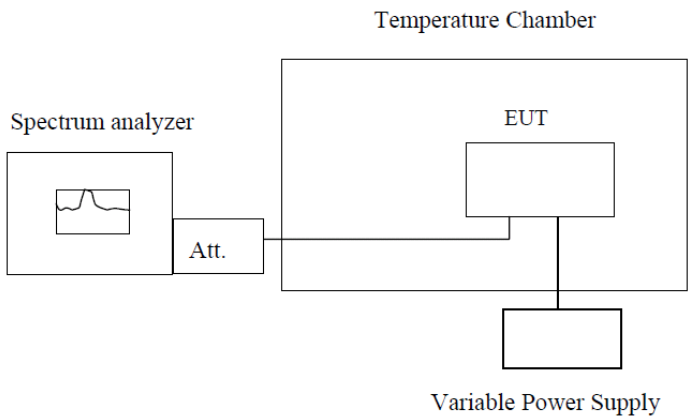
Test mode:	WCDMA Band II		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3704.80	Vertical	-45.19	-13.00	Pass
5557.20	V	-44.96		
7409.60	V	-41.37		
9262.00	V	-39.87		
11114.40	V	-33.83		
3704.80	Horizontal	-41.26	-13.00	Pass
5557.20	H	-38.36		
7409.60	H	-40.80		
9262.00	H	-37.46		
11114.40	H	-33.85		
Test mode:	**WCDMA Band II**		**Test channel:**	**Middle**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3760.00	Vertical	-44.92	-13.00	Pass
5640.00	V	-45.52		
7520.00	V	-41.38		
9400.00	V	-39.91		
11280.00	V	-33.40		
3760.00	Horizontal	-40.76	-13.00	Pass
5640.00	H	-38.56		
7520.00	H	-40.72		
9400.00	H	-37.13		
11280.00	H	-34.40		
Test mode:	**WCDMA Band II**		**Test channel:**	**Highest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3815.20	Vertical	-44.64	-13.00	Pass
5722.80	V	-45.55		
7630.40	V	-41.14		
9538.00	V	-39.04		
11445.60	V	-33.97		
3815.20	Horizontal	-40.45	-13.00	Pass
5722.80	H	-38.52		
7630.40	H	-40.77		
9538.00	H	-37.59		
11445.60	H	-34.37		

Remark：
1. The emission behaviour belongs to narrowband spurious emission.
2. Remark”---“ means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are 20dB lower than the limit and not show in test report.

Test mode:	WCDMA Band IV		Test channel:	Lowest
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3424.8	Vertical	-46.36	-13.00	Pass
5137.2	V	-44.87		
7274.4	V	-42.44		
9411.6	V	-38.94		
10823.2	V	-37.36		
3424.8	Horizontal	-46.08	-13.00	Pass
5137.2	H	-45.46		
7274.4	H	-42.05		
9411.6	H	-39.87		
10823.2	H	-37.88		
Test mode:	**WCDMA Band IV**		**Test channel:**	**Middle**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3480.2	Vertical	-46.51	-13.00	Pass
5220.5	V	-45.10		
7440.3	V	-42.39		
7660.6	V	-39.78		
11320.8	V	-37.20		
3480.2	Horizontal	-46.39	-13.00	Pass
5220.5	H	-45.04		
7440.3	H	-42.43		
7660.6	H	-39.17		
11320.8	H	-37.03		
Test mode:	**WCDMA Band IV**		**Test channel:**	**Highest**
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3505.2	Vertical	-44.86	-13.00	Pass
5257.8	V	-43.59		
7515.6	V	-41.30		
9773.4	V	-38.67		
11546.8	V	-36.06		
3505.2	Horizontal	-45.55	-13.00	Pass
5257.8	H	-44.12		
7515.6	H	-41.14		
9773.4	H	-38.06		
11546.8	H	-36.73		

Remark：
1. The emission behaviour belongs to narrowband spurious emission.
2. Remark”---“ means that the emission level is too low to be measured
3. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

4.10 Frequency stability V.S. Temperature measurement

Test Requirement:	Part 2.1055(a)(1)(b), Part 22.355, Part 24.235, Part 27.54
Test Method:	FCC Part2.1055(d)(1)(2), ANSI/TIA-603-E FCC KDB971168 D01 v03r01 Section 8, ANSI C63.26 clause 5.6.
Limit:	2.5ppm (Band V) Within the authorized bands of operation(Band II, Band IV)
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test procedure:	1. The equipment under test was connected to an external DC power supply and input rated voltage. 2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. 3. The EUT was placed inside the temperature chamber. 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to –20°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.
Test Instruments:	Refer to section 3 for details
Test mode:	Refer to section 4.1 for details
Test results:	Pass
Remark:	If all frequencies stability are comply with the lower limit, then all results can be considered qualified

Measurement Data

Reference Frequency: GSM850 (GPRS 1 link) Middle channel=190 channel=836.6MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
7.2	-20	3	0.0031	2.5	Pass
	-10	3	0.0037		
	0	5	0.0059		
	10	-9	-0.0106		
	20	8	0.0101		
	30	-9	-0.0106		
	40	-3	-0.0039		
	50	11	0.0133		

Reference Frequency: GSM850 (EGPRS 1 link) Middle channel=190 channel=836.6MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
7.2	-20	3	0.0039	2.5	Pass
	-10	0	-0.0006		
	0	3	0.0035		
	10	-3	-0.0030		
	20	1	0.0008		
	30	-15	-0.0178		
	40	4	0.0053		
	50	9	0.0110		

Reference Frequency: PCS1900 (GPRS 1 link) Middle channel=661 channel=1880MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error			Result
		Hz	ppm		
7.2	-20	13	0.0069	2.5	Pass
	-10	9	0.0050		
	0	6	0.0030		
	10	-19	-0.0099		
	20	1	0.0005		
	30	5	0.0024		
	40	-10	-0.0054		
	50	-2	-0.0008		

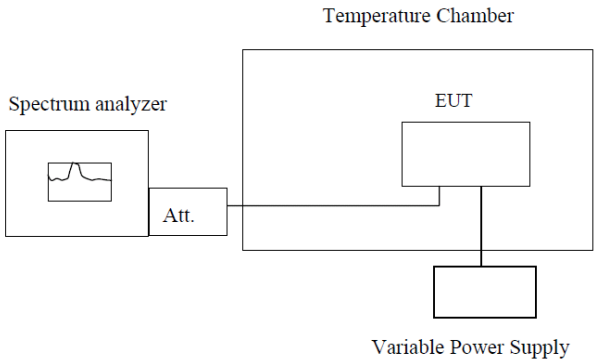
Reference Frequency: PCS1900 (EGPRS 1 link) Middle channel=661 channel=1880MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error			Result
		Hz	ppm		
7.2	-20	21	0.0111	2.5	Pass
	-10	11	0.0059		
	0	4	0.0023		
	10	-18	-0.0095		
	20	-2	-0.0009		
	30	11	0.0058		
	40	-17	-0.0091		
	50	3	0.0016		

Reference Frequency: WCDMA Band V Middle channel=4182 channel=836.4MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
7.2	-20	21	0.0254	2.5	Pass
	-10	8	0.0094		
	0	6	0.0070		
	10	-18	-0.0213		
	20	-1	-0.0009		
	30	5	0.0056		
	40	-19	-0.0228		
	50	8	0.0101		

Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880.0MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
7.2	-20	21	0.0110	2.5	Pass
	-10	6	0.0032		
	0	4	0.0020		
	10	-23	-0.0125		
	20	3	0.0014		
	30	4	0.0020		
	40	-23	-0.0121		
	50	7	0.0039		

Reference Frequency: WCDMA Band IV Middle channel=1450 channel=1740.0MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
7.2	-20	16	0.0092	2.5	Pass
	-10	8	0.0049		
	0	5	0.0029		
	10	-20	-0.0117		
	20	6	0.0034		
	30	7	0.0040		
	40	-22	-0.0129		
	50	7	0.0039		

4.11 Frequency stability V.S. Voltage measurement

Test Requirement:	Part 2.1055(d)(1)(2), Part 22.355, Part 24.235, Part 27.54
Test Method:	FCC Part2.1055(d)(1)(2), ANSI/TIA-603-E FCC KDB971168 D01 v03r01 Section 8, ANSI C63.26 clause 5.6.
Limit:	2.5ppm (Band V) Within the authorized bands of operation(Band II, Band IV)
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test procedure:	1. Set chamber temperature to 20°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage. 2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. 3. Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.
Test Instruments:	Refer to section 3 for details
Test mode:	Refer to section 4.1 for details
Test results:	Pass
Remark:	1. Manufacturer specified the battery operating end point voltage is 8.4VDC, max voltage is 6.1VDC. 2. If all frequencies stability are comply with the lower limit, then all results can be considered qualified

Measurement Data

Reference Frequency: GSM850 (GPRS 1 link) Middle channel=190 channel=836.6MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
20	8.4	16	0.0186	2.5	Pass
	7.2	2	0.0019		
	6.1	-26	-0.0313		
Reference Frequency: GSM850 (EGPRS 1 link) Middle channel=190 channel=836.6MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
20	8.4	15	0.0181	2.5	Pass
	7.2	3	0.0030		
	6.1	-19	-0.0221		

Reference Frequency: PCS1900 (GPRS 1 link) Middle channel=661 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
20	8.4	20	0.0108	2.5	Pass
	7.2	13	0.0067		
	6.1	8	0.0044		
Reference Frequency: PCS1900 (EGPRS 1 link) Middle channel=661 channel=1880MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
20	8.4	14	0.0074	2.5	Pass
	7.2	9	0.0046		
	6.1	6	0.0033		

Reference Frequency: WCDMA Band V Middle channel=4182 channel=836.4MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
20	8.4	24	0.0285	2.5	Pass
	7.2	15	0.0185		
	6.1	9	0.0108		
Reference Frequency: WCDMA Band II Middle channel=9400 channel=1880.0MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
20	8.4	16	0.0186	2.5	Pass
	7.2	13	0.0154		
	6.1	3	0.0034		
Reference Frequency: WCDMA Band IV Middle channel=1450 channel=1740.0MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
20	8.4	18	0.0103	2.5	Pass
	7.2	9	0.0054		
	6.1	-16	-0.0089		

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