



FCC CFR47 PART 22 SUBPART H
FCC CFR47 PART 24 SUBPART E

CERTIFICATION TEST REPORT

FOR

GSM Phone + Bluetooth

MODEL NUMBER: SM-B360E

FCC ID: A3LSMB360E

REPORT NUMBER: 14I18850-E1 Revision A

ISSUE DATE: September 26, 2014

Prepared for

**SAMSUNG ELECTRONICS CO., LTD.
416, MAETAN 3-DONG, YEONGTONG-GU
SUWON-CITY, GYEONGGI-DO 443-742, SOUTH KOREA**

Prepared by

**UL VERIFICATION SERVICES INC.
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888**



NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	9/23/14	Initial Issue	P. Zhang
A	9/26/14	Revise Radiated Power Page 8	P. Zhang

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
EUT DESCRIPTION: GSM Phone + Bluetooth
MODEL: SM-B360E
SERIAL NUMBER: RV1F84A2R1N
DATE TESTED: September 22-23, 2014

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22H, 24E	PASS

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For

UL Verification Services Inc. By:



PENG ZHANG
CONSUMER TECHNOLOGY DIVISION
PROJECT LEAD
UL Verification Services Inc.

Tested By:



DANIEL SOPER
CONSUMER TECHNOLOGY DIVISION
LAB ENGINEER
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-C, FCC CFR 47 Part 22, FCC CFR Part 24.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
☐ Chamber A	☐ Chamber D
☒ Chamber B	☐ Chamber E
☐ Chamber C	☐ Chamber F

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://ts.nist.gov/standards/scopes/2000650.htm>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\text{EIRP} = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss(between the SG and substitution antenna)} + \text{Substitution Antenna Factor (dBi)}$$

$$\text{ERP} = \text{PSA reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss(between the SG and substitution antenna)}$$

$$(\text{Path loss} = \text{Signal generator output} - \text{PSA reading with substitution antenna})$$

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM Phone + Bluetooth capability that is manufactured by Samsung.

5.2. MAXIMUM OUTPUT POWER

FCC Part 22/24						
Band	Frequency Range(MHz)	Modulation	Conducted		Radiated	
			Peak (dBm)	Peak (mW)	Peak (dBm)	Peak (mW)
GSM850	824~849	GMSK	32.5	1778.3		
	824~849	GPRS	32.5	1778.3	26.401	436.62
GSM1900	1850~1910	GMSK	29.3	851.1		
	1850~1910	GPRS	29.3	851.1	30.48	1116.9

The transmitter has a maximum peak conducted and radiated ERP / EIRP output powers as follows:

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna for the [List the bands supported] with a maximum peak gain as follow:

Frequency (MHz)	Peak Gain (dBi)
GSM850, 824~849MHz	-0.9
GSM1900, 1850~1910MHz	2.8

5.4. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Samsung	SMB360E	N/A	N/A
Headset	Samsung	SMB360E	N/A	N/A

I/O CABLES (CONDUCTED SETUP)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	RF Out	1	Spectrum Analyzer	Shielded	None	NA
2	Antenna Port	1	EUT	Shielded	0.1m	NA
3	RF In/Out	1	Communication Test Set	Shielded	1m	NA

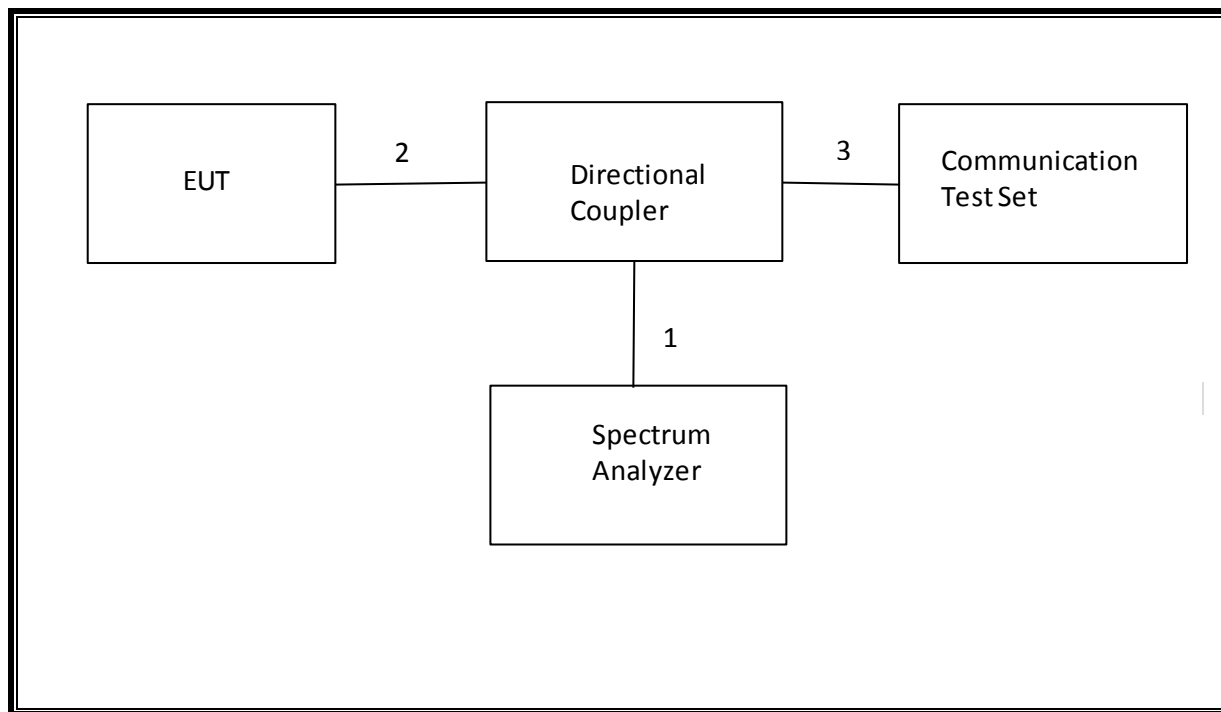
I/O CABLES (RADIATED SETUP)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	USB	1	AC Adapter	Un-shielded	1.2m	No
2	Jack	1	Headset	Shielded	1m	No
3	RF In/out	1	Communication Test Set	Un-shielded	2m	Yes

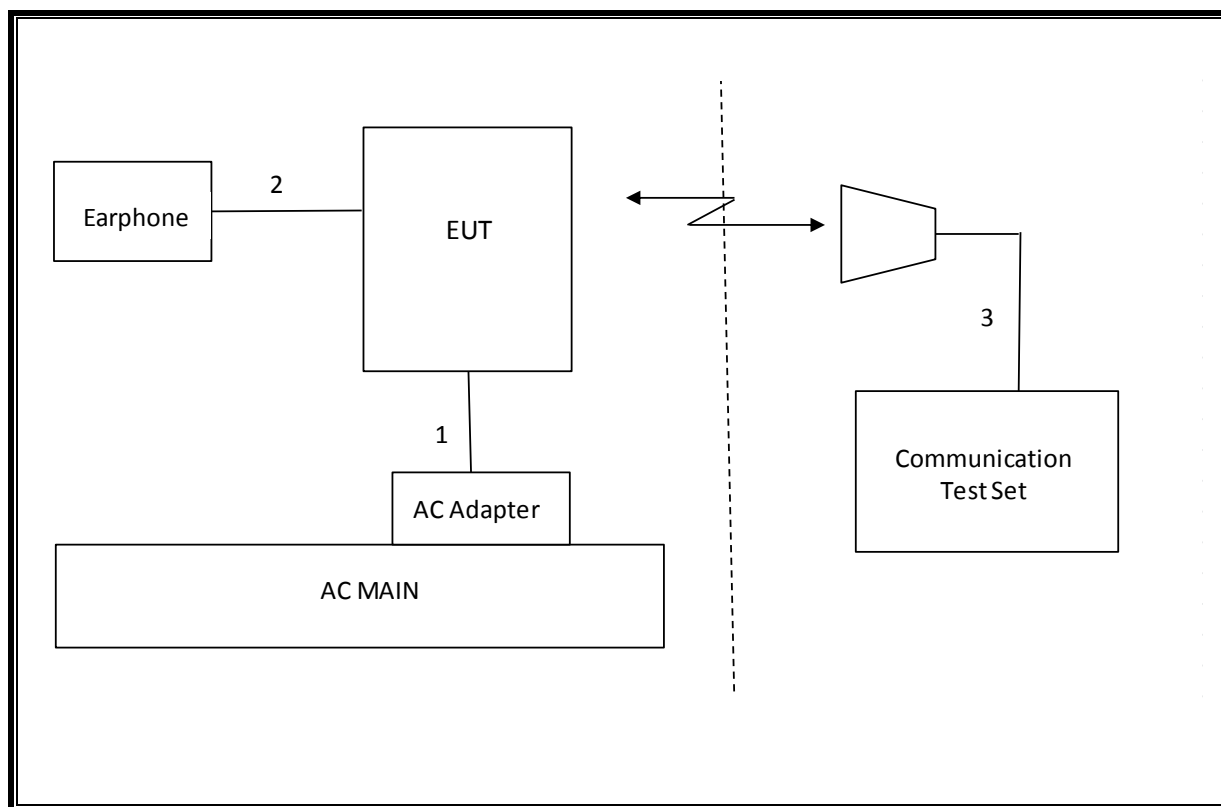
TEST SETUP

The EUT is continuously communicated to the call box during the tests.

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01179	02/26/15
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	01/23/15
Antenna, Horn, 18 GHz	EMCO	3115	C00783	10/25/14
Antenna, Horn, 18 GHz	EMCO	3115	C00784	10/25/14
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02687	CNR
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02688	CNR
Temperature / Humidity Chamber	Thermotron	SE 600-10-10	C00930	01/09/15
Communications Test Set	R&S	CMW500	T159	07/02/15
DC power supply, 8 V @ 3 A or 15 V	Agilent / HP	E3610A	None	CNR
Antenna, Tuned Dipole 400-1000	ETS	3121C DB4	C00993	02/14/15
Directional Coupler	RF-Lambda	RFDC5M06G15	None	CNR
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00589	12/17/14

7. Summary Table

Test Description	Test Limit	Test Condition	Test Result	Worse Case
Occupied Bandwidth (99%)	N/A	Conducted	Pass	242.71 kHz
Band Edge / Conducted Spurious Emission	-13dBm		Pass	-23.6 dBm
Conducted output power	N/A		Pass	32.5 dBm
Frequency Stability	2.5PPM		Pass	.032PPM
Effective Radiated Power	38 dBm	Radiated	Pass	30.48 dBm
Equivalent Isotropic Radiated Power	33dBm		Pass	26.4 dBm
Radiated Spurious Emission	-13dBm		Pass	-41.4 dBm

8. RF POWER OUTPUT VERIFICATION

8.1. GSM/GPRS/EDGE

Function: Menu select > GSM Mobile Station > GSM 850/900/1800/1900
Press Connection control to choose the different menus
Press RESET > choose all to reset all settings
Connection Press Signal Off to turn off the signal and change settings
Network Support > GSM+GPRS or GSM+EGPRS
Main Service > Packet Data
Service selection > Test Mode A – Auto Slot Config. off
MS Signal Press Slot Config bottom on the right twice to select and change the number of time slots and power setting
 > Slot configuration > Uplink/Gamma
 > 33 dBm for GPRS 850/900
 > 30 dBm for GPRS1800/1900
BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel
Frequency Offset > + 0 Hz
Mode > BCCH and TCH
BCCH Level > -85 dBm (May need to adjust if link is not stable)
BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]
Channel Type > Off
P0> 4 dB
Slot Config > Unchanged (if already set under MS Signal)
TCH > choose desired test channel
Hopping > Off
Main Timeslot > 3 (Default)
Network Coding Scheme > CS4 (GPRS) and MCS5 ~ MCS9 (EGPRS)
 Bit Stream > 2E9-1PSR Bit Pattern
AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input
Connection Press Signal On to turn on the signal and change settings

8.1.1. GSM OUTPUT POWER RESULT

Band	Mode	Ch.	f(MHz)	1 time slot	2 time slot	3 time slot	4 time slot
				Peak (dBm)	Peak (dBm)	Peak (dBm)	Peak (dBm)
GSM850	GMSK	128	824.2	32.5			
		190	836.6	32.5			
		251	848.8	32.5			
	GPRS	128	824.2	32.5	31.0	29.4	27.4
		190	836.6	32.5	31.0	29.4	27.4
		251	848.8	32.5	31.0	29.4	27.4
GSM1900	GMSK	512	1850.2	29.3			
		661	1880	29.3			
		810	1909.8	29.1			
	GPRS	512	1850.2	29.3	28.0	26.5	24.5
		661	1880	29.3	28.0	26.5	24.5
		810	1909.8	29.1	27.8	26.3	24.3

9. PEAK TO AVERAGE RATIO

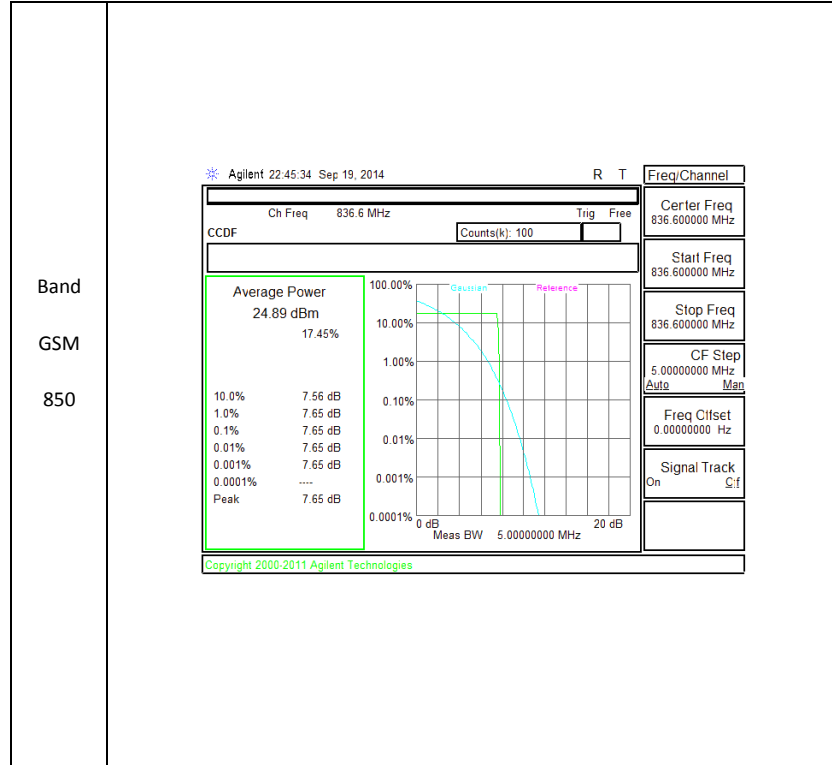
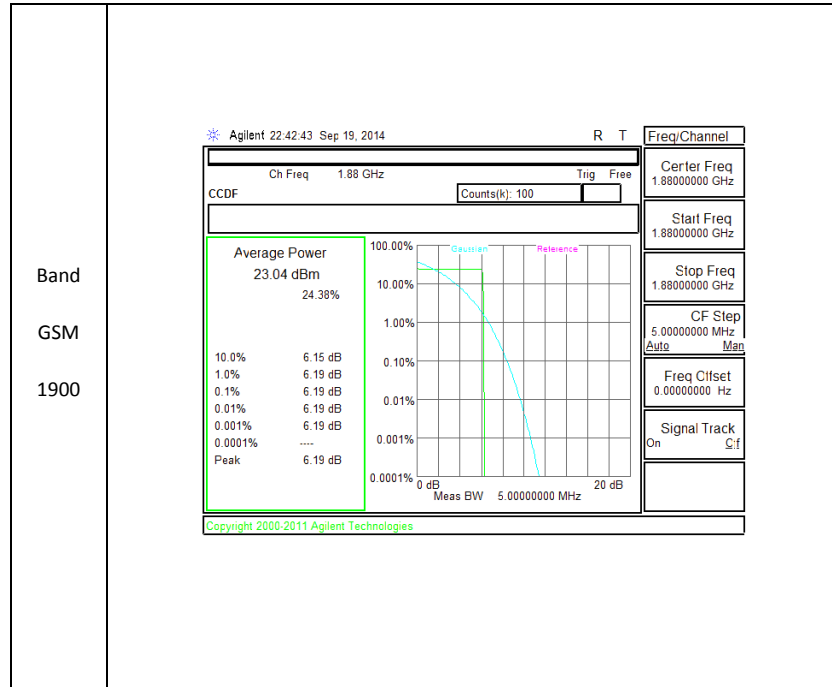
Test Procedure

Per KDB 971168 D01 Power Meas License Digital Systems v02r01

Test Spec

In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

9.1. CONDUCTED PEAK TO AVERAGE RESULT



10. LIMITS AND CONDUCTED RESULTS

10.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

IC: RSS-132, 4.5; RSS-133, 6.5

LIMITS

For reporting purposes only

TEST PROCEDURE

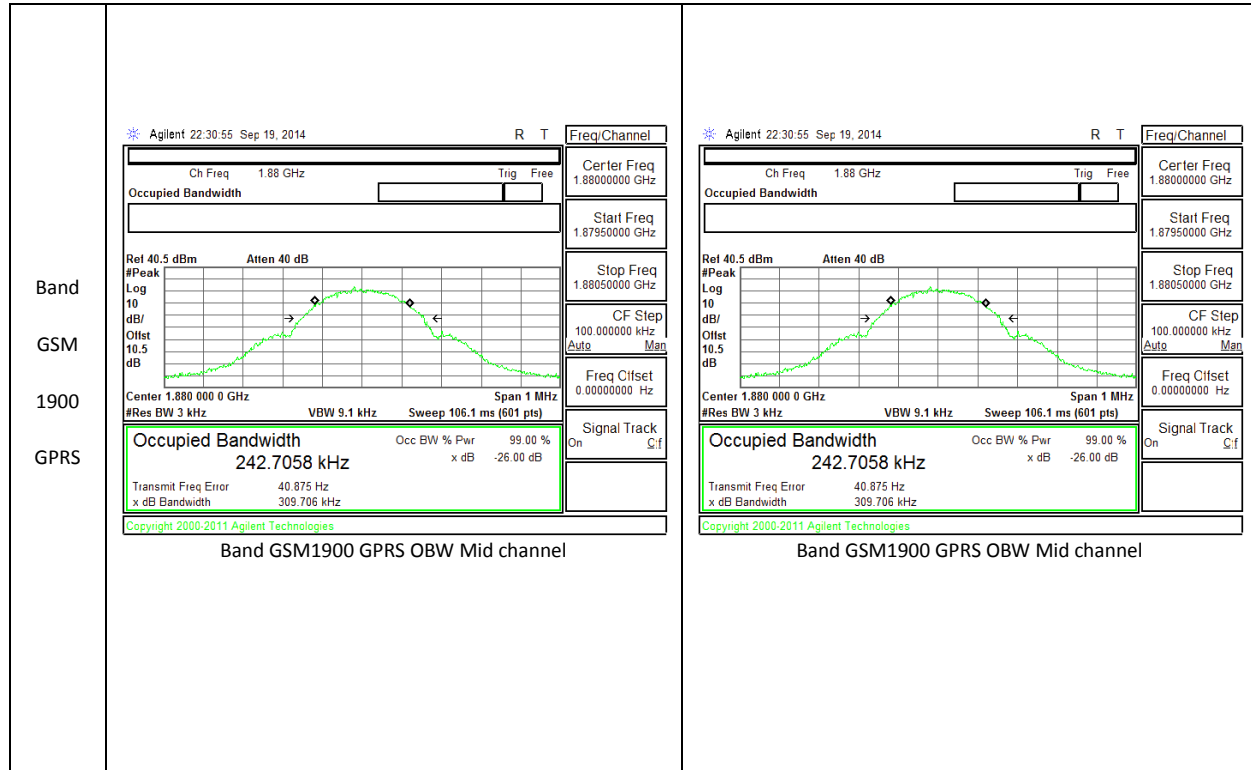
The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

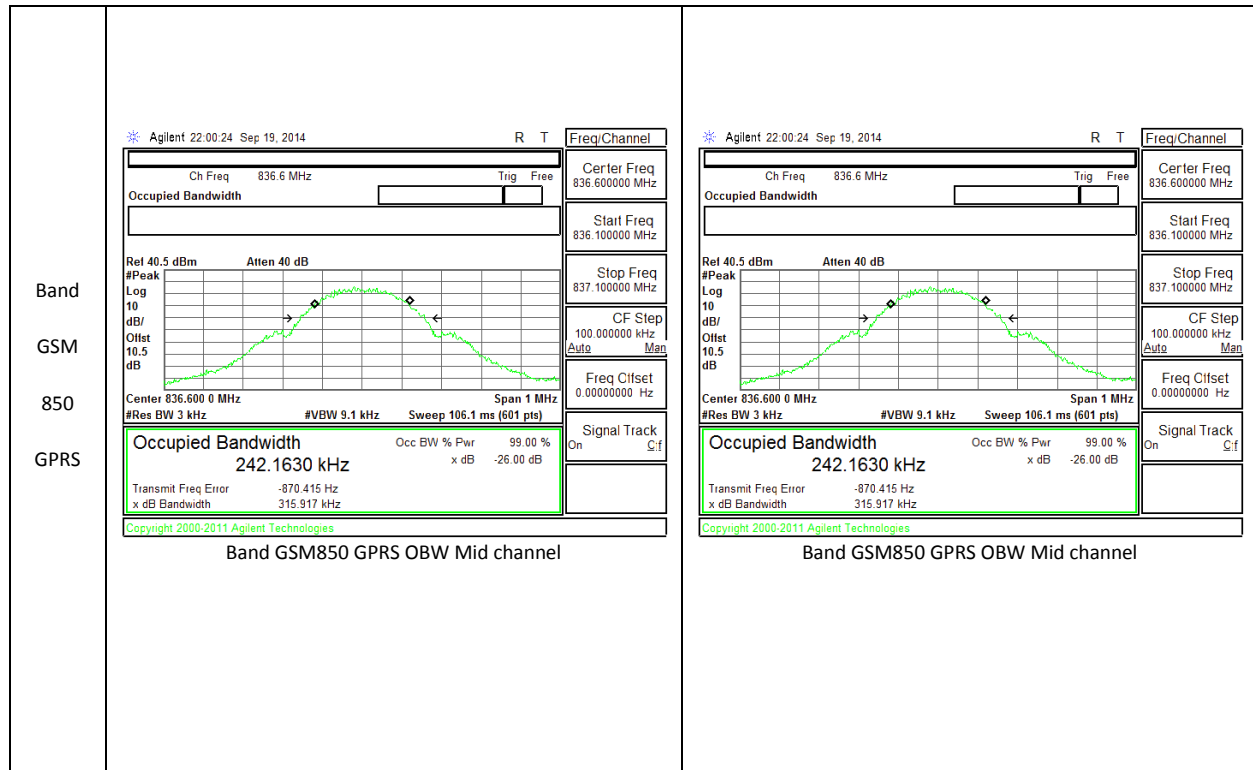
(KDB 971168 D01 Power Meas License Digital Systems v02r01 - 06/07/2013)

10.1.1. OCCUPIED BANDWIDTH RESULTS

Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
GSM 850	GPRS	128	824.2	0.244	0.314
		190	836.6	0.242	0.316
		251	848.8	0.245	0.317
GSM1900	GPRS	512	1850.2	0.241	0.317
		661	1880	0.243	0.310
		810	1909.8	0.246	0.320

10.1.1. OCCUPIED BANDWIDTH PLOTS





10.2. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §22.359, §24.238

LIMITS

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.

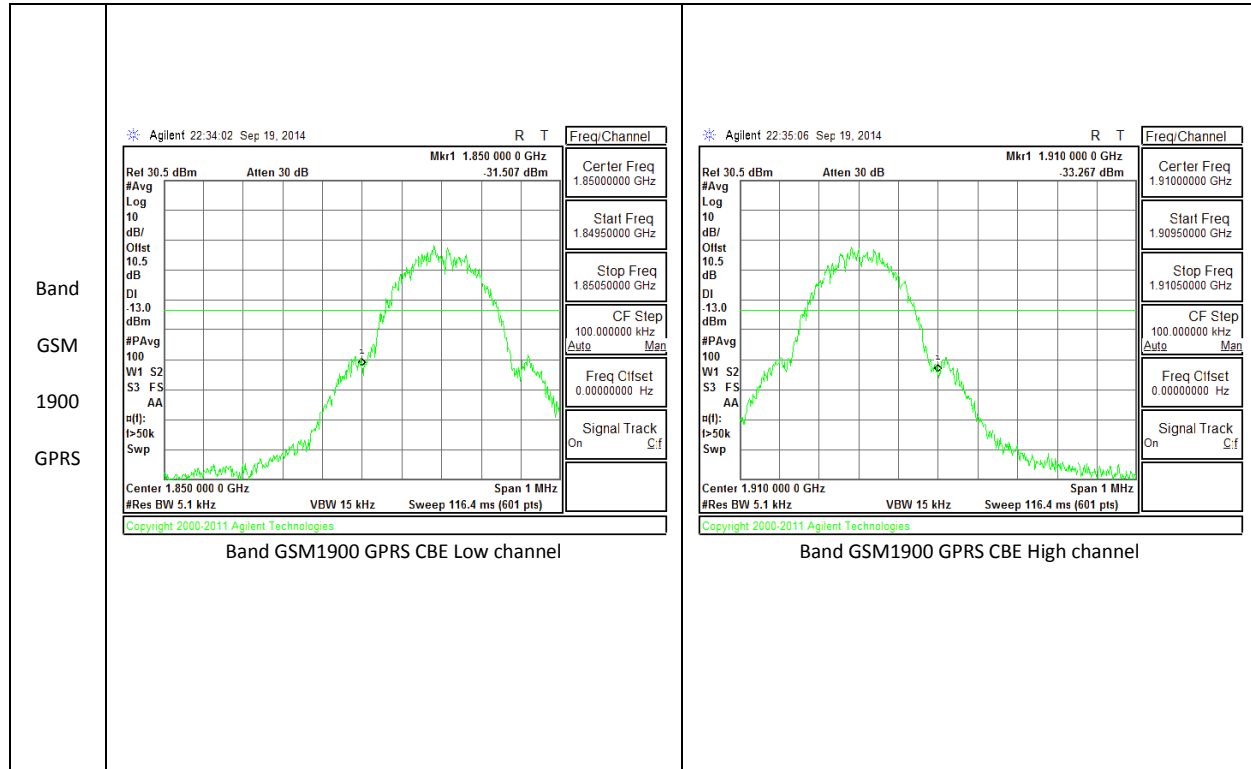
TEST PROCEDURE

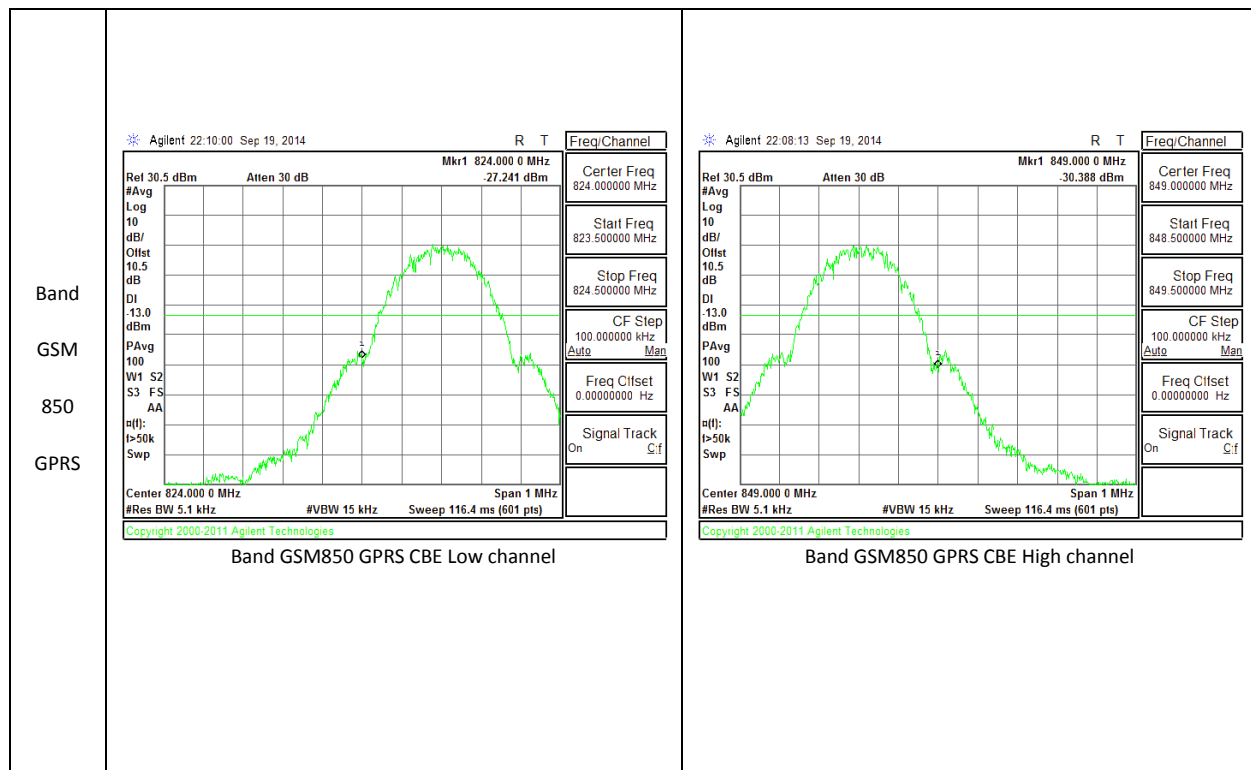
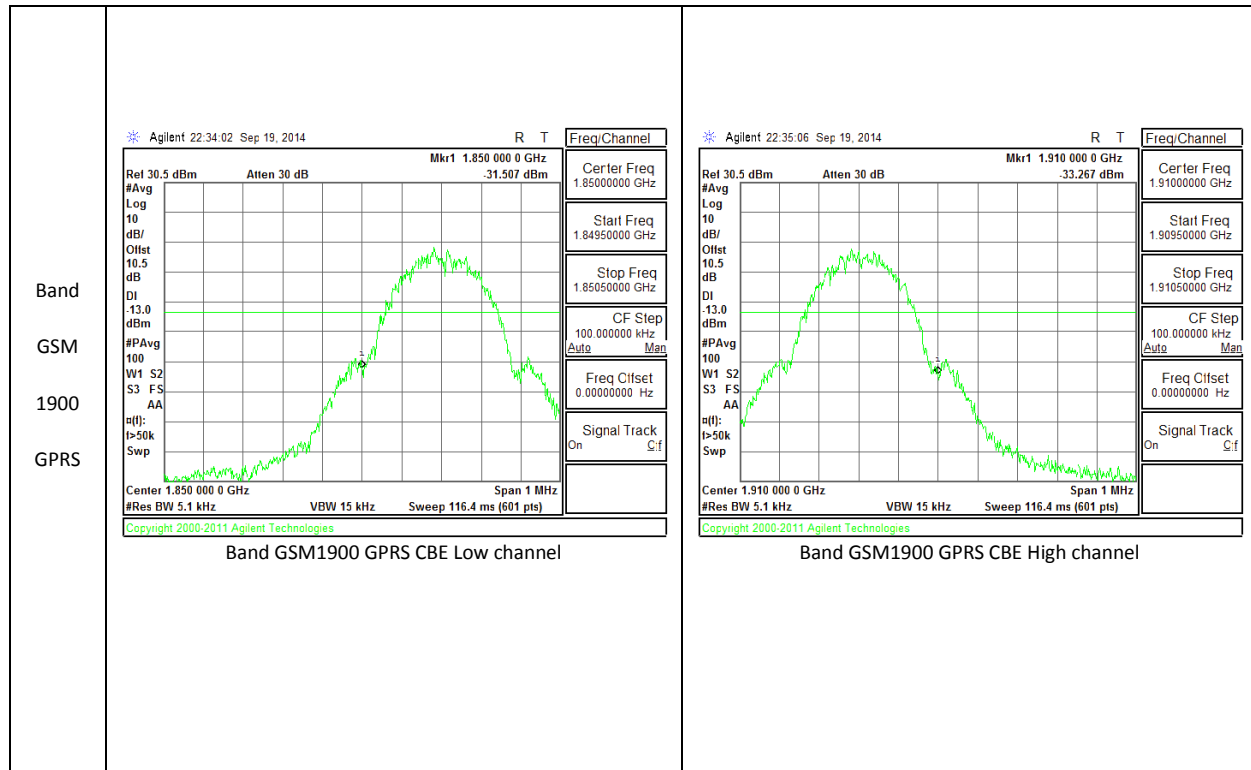
Per KDB 971168 D01 Power Meas License Digital Systems v02r01

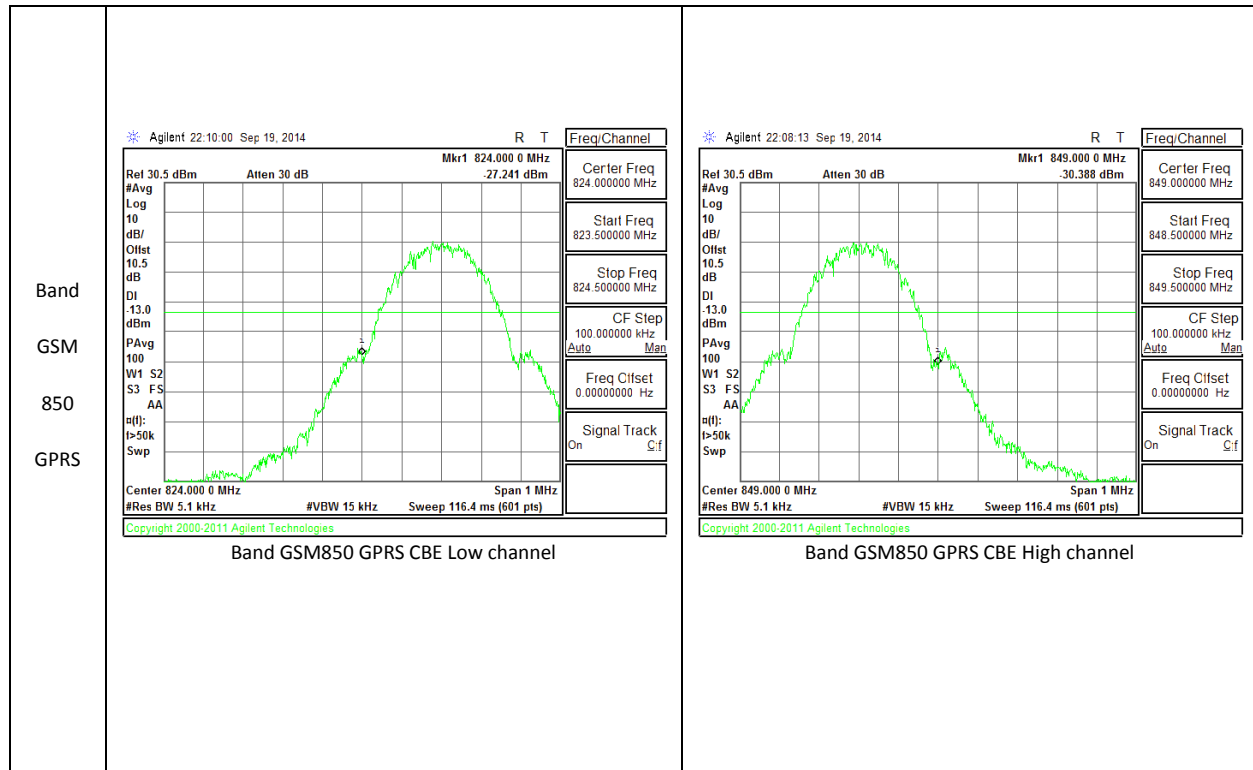
The transmitter output was connected to an Agilent 8960 or a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

RESULTS

10.2.1. BAND EDGE PLOTS







10.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238

LIMITS

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.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r01

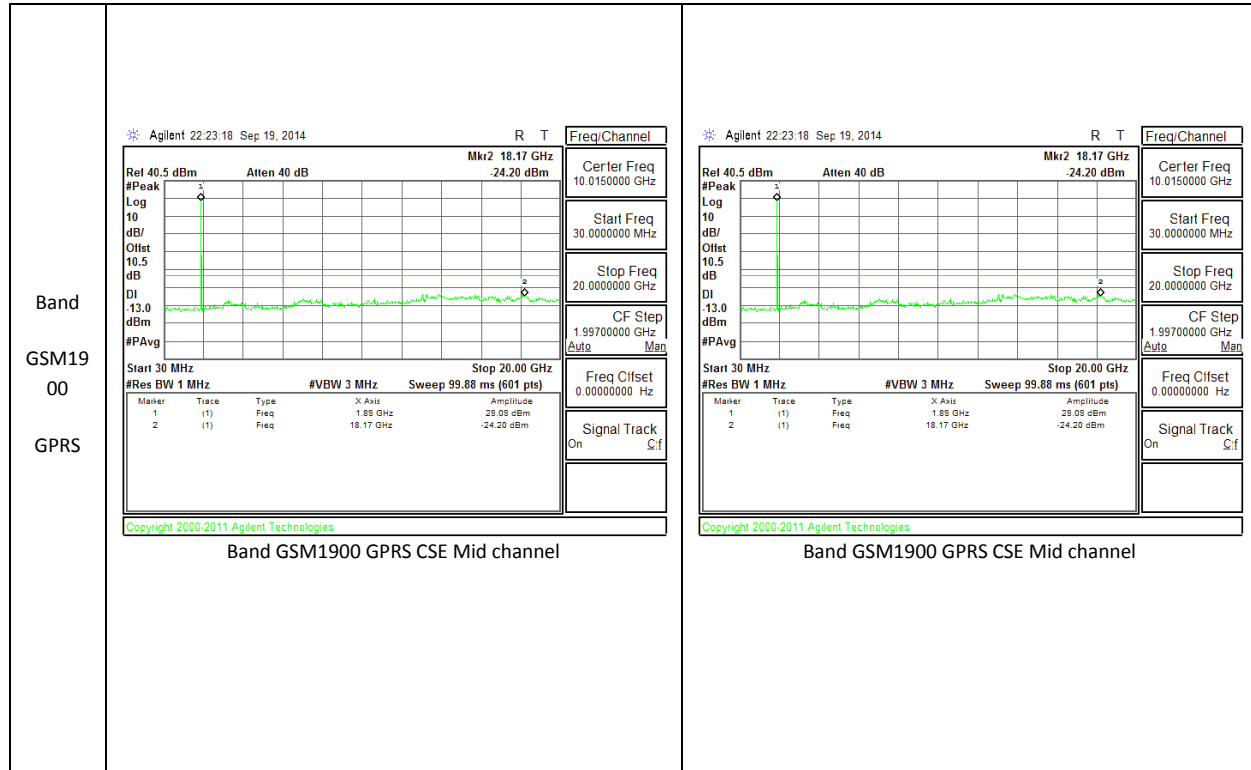
The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

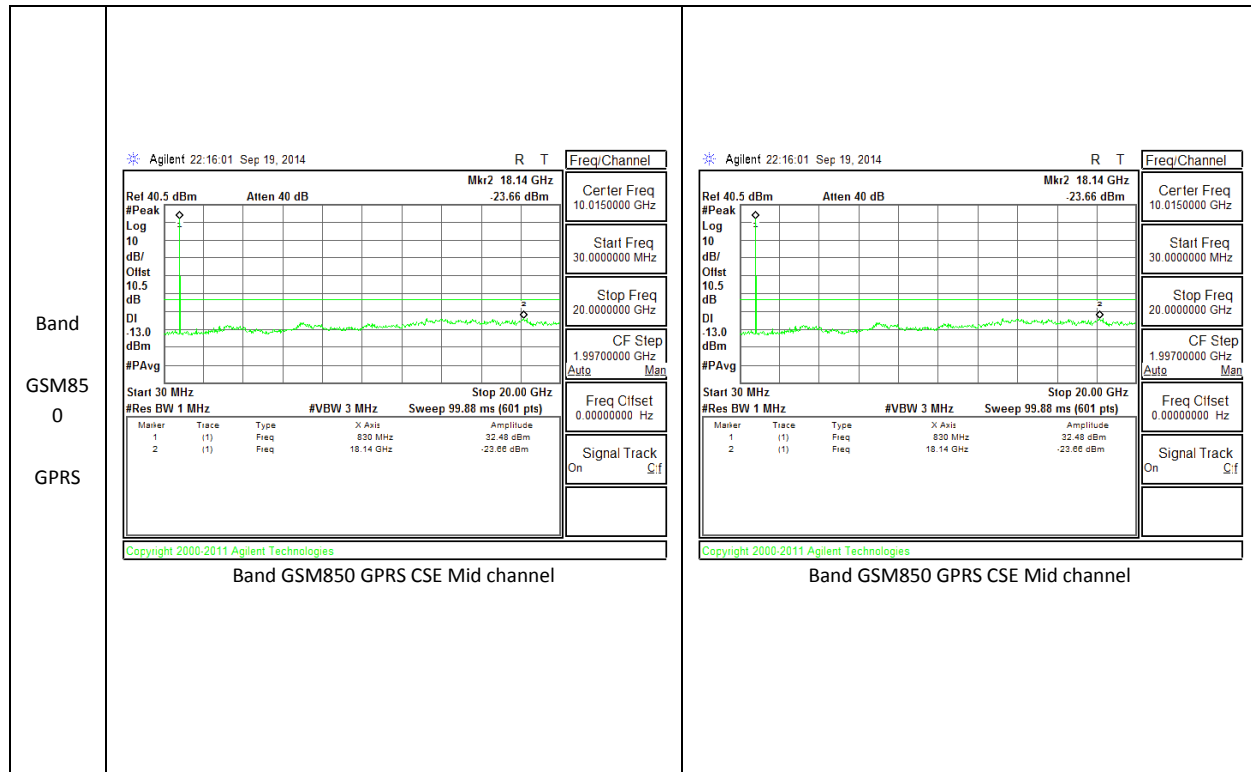
RESULTS

10.3.1. OUT OF BAND EMISSIONS RESULT

Band	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
GSM850	GPRS	824.2	-23.67	-13	-10.67
		836.6	-23.66	-13	-10.66
		848.8	-24.9	-13	-11.90
GSM1900	GPRS	1850.2	-23.85	-13	-10.85
		1880	-24.2	-13	-11.20
		1909.8	-24.4	-13	-11.40

10.3.2. OUT OF BAND EMISSIONS PLOTS





10.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235

LIMITS

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.

§24.235 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r01

RESULTS

10.4.1. FREQUENCY STABILITY RESULTS

GSM850 MODULATION –MID CHANNEL

Reference Frequency: Cell Mid Channel 836.6 MHz @ 20°C Limit: +/- 2.5 ppm = 2092.500 Hz				
Power Supply (Vdc)	Environment Temperature (*C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	836.600006	0.004	2.5
3.80	40	836.600008	0.001	2.5
3.80	30	836.600007	0.002	2.5
3.80	20	836.600009	0	2.5
3.80	10	836.600004	0.006	2.5
3.80	0	836.600006	0.004	2.5
3.80	-10	836.600007	0.002	2.5
3.80	-20	836.600008	0.001	2.5
3.80	-30	836.600009	0.000	2.5

Reference Frequency: Mid Channel 836.6 MHz @ 20°C Limit: +/- 2.5 ppm = 2092.500 Hz				
Power Supply (Vdc)	Environment Temperature (*C)	Frequency Deviation Measured with Time Elapse		
			Delta (ppm)	Limit (ppm)
3.80	20	836.600009	0.000	2.5
4.30	20	836.600008	0.001	2.5
3.40	20	836.600008	0.001	2.5

GSM1900 MODULATION –MID CHANNEL

Reference Frequency: PC S Mid Channel 1880MHz @ 20°C Limit: to stay +/- 2.5 ppm = 4700.000 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	1880.000013	0.009	2.5
3.80	40	1880.000017	0.007	2.5
3.80	30	1880.000015	0.008	2.5
3.80	20	1880.000030	0	2.5
3.80	10	1880.000090	-0.032	2.5
3.80	0	1880.000080	-0.027	2.5
3.80	-10	1880.000010	0.011	2.5
3.80	-20	1880.000013	0.009	2.5
3.80	-30	1880.000030	0.000	2.5

Reference Frequency: PCS Mid Channel 1880 MHz @ 20°C Limit: to stay +/- 2.5 ppm = 4700.000 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	20	1880.000030	0	2.5
4.30	20	1880.000025	0.003	2.5
3.40	20	1880.000042	-0.006	2.5

RADIATED TEST RESULTS

10.5. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232

LIMITS

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

24.232(c) - Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13dB.

TEST PROCEDURE

ANSI / TIA / EIA 603C Clause 2.2.17; PSA setting reference to 971168 D01 v02r01

For peak power measurement with a PSA:

a) Set the RBW $\geq$ OBW; b) Set VBW $\geq 3 \times$ RBW; c) Set span $\geq 2 \times$ RBW; d) Sweep time = auto couple; e) Detector = peak; f) Ensure that the number of measurement points $\geq$ span/RBW; g) Trace mode = max hold;

For average power measurement with a PSA:

a) Set span to at least 1.5 times the OBW; b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz; c) Set VBW $\geq 3 \times$ RBW; d) Set number of points in sweep $\geq 2 \times$ span / RBW; e) Sweep time = auto-couple; f) Detector = RMS (power averaging); g) Use free run trigger If burst duty cycle ≥ 98 ; h) Use trigger to capture bursts If burst duty cycle < 98 ; i) Trace average at least 100 traces in power averaging (*i.e.*, RMS) mode. j) Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function.

TEST RESULTS

10.5.1. ERP/EIRP Results

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM1900	GMSK	512	1850.2		
		661	1880		
		810	1909.8		
	GPRS	512	1850.2	30.28	1066.6
		661	1880	30.43	1104.1
		810	1909.8	30.48	1116.9

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM850	GMSK	128	824.2		
		190	836.6		
		251	848.8		
	GPRS	128	824.2	23.321	214.83
		190	836.6	25.201	331.21
		251	848.8	26.401	436.62

10.5.2. ERP/EIRP DATA

Band

GSM19
00

GPRS

High Frequency Substitution Measurement UL Verification Services, Inc. Chamber B								
Company:	Samsung							
Project #:	14118850							
Date:	09/22/14							
Test Engineer:	K. Kedida							
Configuration:	EUT only							
Mode:	GPRS 1900							
<u>Test Equipment:</u>								
Receiving: Horn T119, and Chamber B SMA Cables								
Substitution: Horn T963 Substitution, 4ft SMA Cable Warehouse								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low								
1850.20	18.01	V	0.85	10.41	27.57	33.0	-5.4	
1850.20	20.72	H	0.85	10.41	30.28	33.0	-2.7	
Mid								
1880.00	19.08	V	0.85	10.81	29.04	33.0	-4.0	
1880.00	20.47	H	0.85	10.81	30.43	33.0	-2.6	
High								
1909.80	19.25	V	0.85	11.15	29.55	33.0	-3.4	
1909.80	20.18	H	0.85	11.15	30.48	33.0	-2.5	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

Band

GSM850

GPRS

High Frequency Substitution Measurement UL Verification Services, Inc. Chamber B								
Company:	Samsung							
Project #:	14I18850							
Date:	09/23/14							
Test Engineer:	D.Soper							
Configuration:	EUT X-axis							
Mode:	GPRS850							
Test Equipment:								
Receiving: Sunol T243, and 3m B Chamber N-type Cable (Setup this one for testing EUT)								
Substitution: Dipole S/N: 00022117, 4ft SMA Cable (SN # 245200 001) Warehouse.								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.20	16.37	V	0.9	0.0	15.47	38.5	-23.0	
824.20	24.22	H	0.9	0.0	23.32	38.5	-15.1	
Mid Ch								
836.60	17.60	V	0.9	0.0	16.70	38.5	-21.8	
836.60	26.10	H	0.9	0.0	25.20	38.5	-13.2	
High Ch								
848.80	17.91	V	0.9	0.0	17.01	38.5	-21.4	
848.80	27.30	H	0.9	0.0	26.40	38.5	-12.0	
Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm								

10.6. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238

LIMIT

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.

TEST PROCEDURE

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

RESULTS

10.6.1. SPURIOUS RADIATION DATA

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:		Samsung								
Project #:		14I18850								
Date:		09/22/14								
Test Engineer:		K.Kedida								
Configuration:		X-Pos EUT w/ AC charger, headset								
Mode:		GPRS1900								
Chamber		Pre-amplifier		Filter		Limit				
3m Chamber		T34 8449B		Filter 1		Part 24				
Band	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
GSM 1900 GPRS	Low Ch, 1850.2MHz									
	3.700	-20.6	V	3.0	35.4	1.0	-55.0	-13.0	-42.0	
	5.551	-8.1	V	3.0	34.7	1.0	-41.8	-13.0	-28.8	
	7.401	-9.6	V	3.0	34.9	1.0	-43.5	-13.0	-30.5	
	3.700	-20.9	H	3.0	35.4	1.0	-55.3	-13.0	-42.3	
	5.551	-8.4	H	3.0	34.7	1.0	-42.2	-13.0	-29.2	
	7.401	-10.3	H	3.0	34.9	1.0	-44.2	-13.0	-31.2	
	Mid Ch, 1880MHz									
	3.760	-21.0	V	3.0	35.3	1.0	-55.3	-13.0	-42.3	
	5.640	-9.7	V	3.0	34.7	1.0	-43.4	-13.0	-30.4	
	7.520	-10.1	V	3.0	34.9	1.0	-44.0	-13.0	-31.0	
	3.760	-21.2	H	3.0	35.3	1.0	-55.5	-13.0	-42.5	
	5.640	-9.7	H	3.0	34.7	1.0	-43.5	-13.0	-30.5	
	7.520	-11.9	H	3.0	34.9	1.0	-45.8	-13.0	-32.8	
	High Ch, 1909.8MHz									
	3.820	-20.9	V	3.0	35.3	1.0	-55.2	-13.0	-42.2	
	5.729	-9.5	V	3.0	34.7	1.0	-43.2	-13.0	-30.2	
	7.639	-12.7	V	3.0	35.0	1.0	-46.7	-13.0	-33.7	
	3.820	-21.0	H	3.0	35.3	1.0	-55.2	-13.0	-42.2	
	5.729	-7.7	H	3.0	34.7	1.0	-41.4	-13.0	-28.4	
7.639	-7.5	H	3.0	35.0	1.0	-41.4	-13.0	-28.4		
Rev. 03.03.09										
Note: No other emissions were detected above the system noise floor.										

UL Verification Services, Inc. Above 1GHz High Frequency Substitution Measurement										
Company:	Samsung									
Project #:	14I18850									
Date:	09/22/14									
Test Engineer:	K.Kedida									
Configuration:	EUT w/ AC Adaptor + HS, X-pos (SN: 1958414)									
Mode:	GPRS850									
Chamber 3m Chamber Pre-amplifier T34 8449B Filter Filter 1 Limit Part 22										
Band GSM 850 GPRS	f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2MHz										
	1.648	-8.3	V	3.0	37.4	1.0	-44.7	-13.0	-31.7	
	2.473	-22.4	V	3.0	36.4	1.0	-57.7	-13.0	-44.7	
	3.297	-20.4	V	3.0	35.8	1.0	-55.2	-13.0	-42.2	
	1.648	-5.9	H	3.0	37.4	1.0	-42.3	-13.0	-29.3	
	2.473	-22.1	H	3.0	36.4	1.0	-57.5	-13.0	-44.5	
	3.297	-21.3	H	3.0	35.8	1.0	-56.1	-13.0	-43.1	
Mid Ch, 836.6MHz										
	1.673	-8.6	V	3.0	37.3	1.0	-44.9	-13.0	-31.9	
	2.510	-21.6	V	3.0	36.4	1.0	-57.0	-13.0	-44.0	
	3.346	-21.0	V	3.0	35.8	1.0	-55.7	-13.0	-42.7	
	1.673	-5.4	H	3.0	37.3	1.0	-41.8	-13.0	-28.8	
	2.510	-22.3	H	3.0	36.4	1.0	-57.7	-13.0	-44.7	
	3.346	-19.6	H	3.0	35.8	1.0	-54.4	-13.0	-41.4	
High Ch, 848.8MHz										
	1.698	-8.7	V	3.0	37.3	1.0	-45.0	-13.0	-32.0	
	2.546	-19.5	V	3.0	36.3	1.0	-54.9	-13.0	-41.9	
	3.395	-18.4	V	3.0	35.7	1.0	-53.1	-13.0	-40.1	
	1.698	-5.8	H	3.0	37.3	1.0	-42.1	-13.0	-29.1	
	2.546	-19.7	H	3.0	36.3	1.0	-55.1	-13.0	-42.1	
	3.395	-17.7	H	3.0	35.7	1.0	-52.4	-13.0	-39.4	
Rev. 03.03.09 Note: No other emissions were detected above the system noise floor.										