



TEST REPORT

GSM mobile phone
Model No.:X3

Test Standard: FCC CFR Title 47 Part 2 22
Test Report Number : EST0910-202R2-F
FCC ID: XUMPREX3



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1 General Information


1.1 Client Information

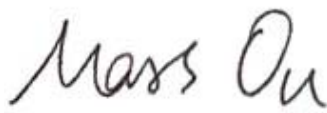
Applicant: LTT Card Services, INC
 Address of Applicant: PO Box 194625 San Juan, Puerto Rico 00919-4625 United State
 Manufacturer: General Electric Communication Limited
 Address of Manufacturer: Unit 1017, Tian An Cyber Times Tower A, Futian District, Shenzhen, China

1.2 General Description of E.U.T.

Product Name:	GSM mobile phone	
TX Frequency	824MHz~849MHz(GSM 850)	
Rx Frequency	869MHz~894MHz(GSM 850)	
Product Name	GSM mobile phone	
Model:	X3	
Trade Name	Premier	
Antenna Type	Internal	
Hardware Version	V1.1	
Software Version	F1_DHDZ-ENX_900-LATI- -MCP_NWLS2-HW_V1.0-SW_VOO1	
Peak Power Output(ERP)	1.96W	
Battery	Rated Voltage	3.7V DC
	Current	300mA
	Capacitance	850mAh
Charger adaptor:	Electrical Rating [Input]	100~240V AC
	Electrical Rating [Output]	5V DC 550mA
	Model	TN0500550D-08

Date of Test : Oct. 23~27, 2009

Prepared by : 
 (Engineer)

Reviewer : 
 (Project Manager)

Approved & Authorized Signer : 

1.3 Test Location

All tests were sub-contracted. at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory,
No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China. 518057.
Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

1.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP – Lab Code: 200611-0**
SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.
- **ACA**
SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.
- **VCCI**
The 3m Semi-anechoic chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2197 and C-2383 respectively.
Date of Registration: September 29, 2008. Valid until September 28, 2011
- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**
Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES
- **CNAS (No. CNAS L2929)**
CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.
- **FCC – Registration No.: 556682**
SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 556682, Aug. 04, 2005
- **Industry Canada (IC)**
The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1.

2 Equipments Used during Test

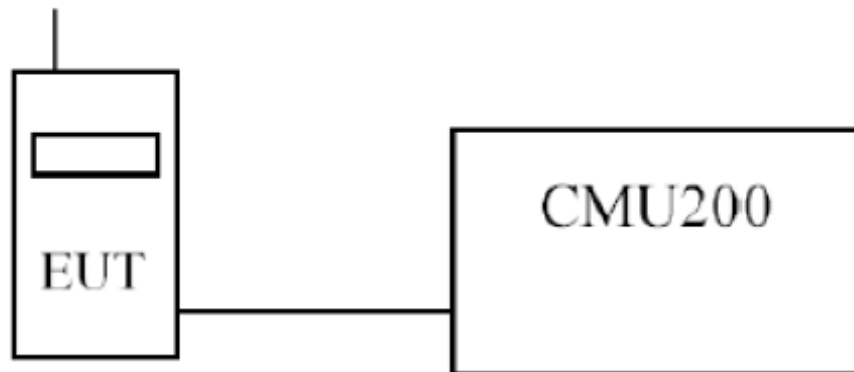
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	16-06-2008	15-06-2010
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	12-12-2008	11-12-2010
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0028	18-06-2009	17-06-2010
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0014	12-08-2009	11-08-2010
6	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	18-06-2009	17-06-2010
7	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0005	12-08-2009	11-08-2010
8	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	12-08-2009	11-08-2010
9	Pre-amplifier (1-18GHz)	Rohde & Schwarz	AFS42-00101 800-25-S-42	SEL0081	18-06-2009	17-06-2010
10	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33- 18002650-30- 8P-44	SEL0080	18-06-2009	17-06-2010
11	Band filter	Amindeon	82346	SEL0094	18-06-2009	17-06-2010
12	Spectrum Analyzer	Agilent	E4408B	SEL0097	15-06-2009	14-06-2010

3 Test Results

3.1 Peak Power Output

3.1.1 Test Setup

Conducted Power Measurement



3.1.2 Test Procedure

RF Out Power (Conducted / ERP)

The EUT is tested with maximum rated TX power via the Base Station simulator, and the output power was measured at the antenna terminals of the EUT.

3.1.3 Limit

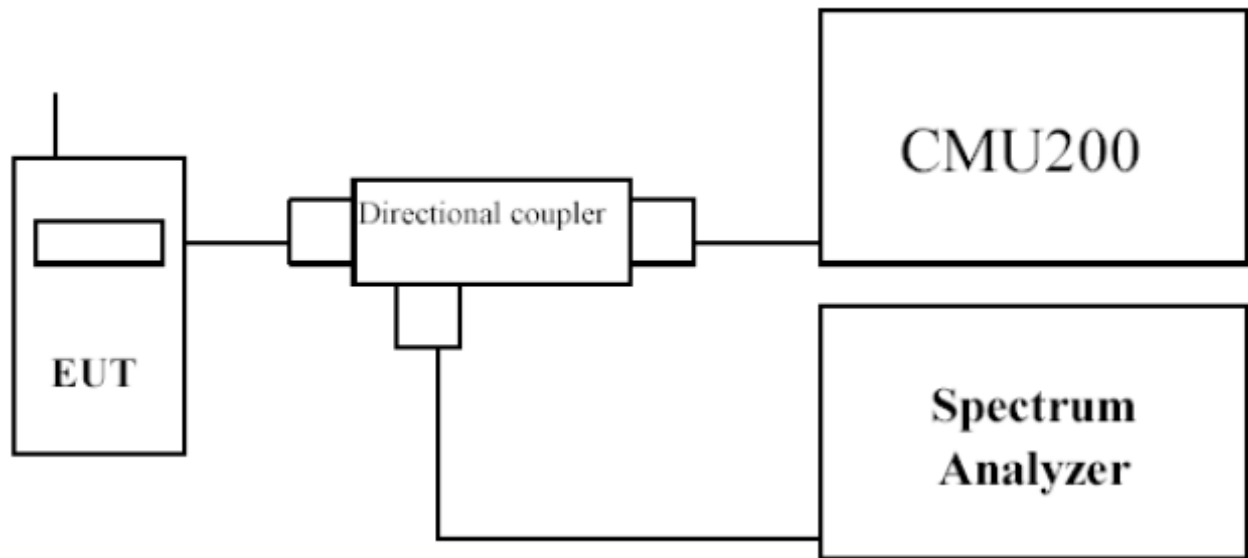
Frequency	Limit
Cellular Band 850	<7W or +38.5dBm

3.1.4 Test Result of Peak Power Output (ERP)

GSM 850				
Frequency (MHz)	Output Power (dBm)	Path Loss (dB)	Result (dBm)	Result (W)
824.2	31.88	0.4	32.28	1.69
836.4	32.52	0.4	32.92	1.96
848.8	32.49	0.4	32.89	1.95
GSM 850 GPRS				
824.2	31.82	0.4	32.22	1.67
836.4	32.47	0.4	32.87	1.94
848.8	32.43	0.4	32.83	1.92

3.2 Occupied Bandwidth

3.2.1 Test Setup



3.2.2 Test Procedure

The EUT is tested with maximum rated TX power via the Base Station simulator, and the occupied bandwidth was measured at the antenna terminals of the EUT.

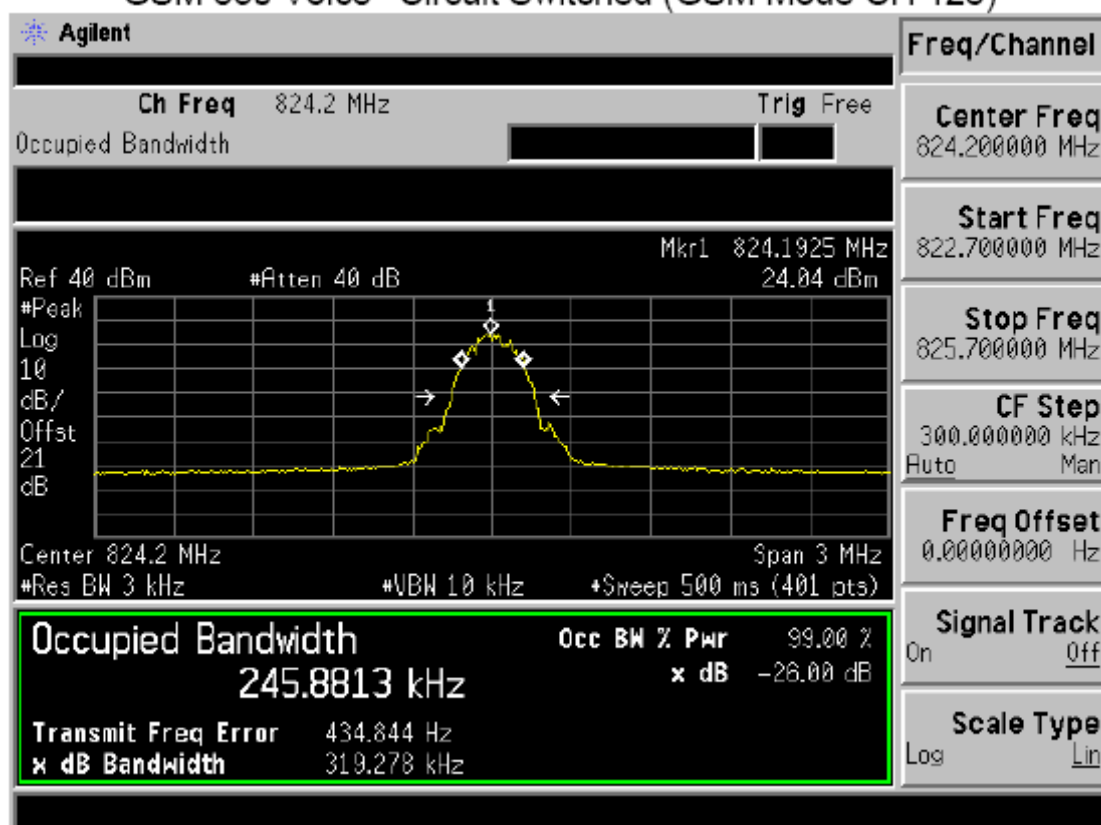
The Resolution BW of the analyzer is set to 1 % of the emission bandwidth. The EUT's occupied bandwidth is measured as the width of the signal between two points, one below the carrier center frequency and one above the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

The plots below show the resultant display from the Spectrum Analyser.

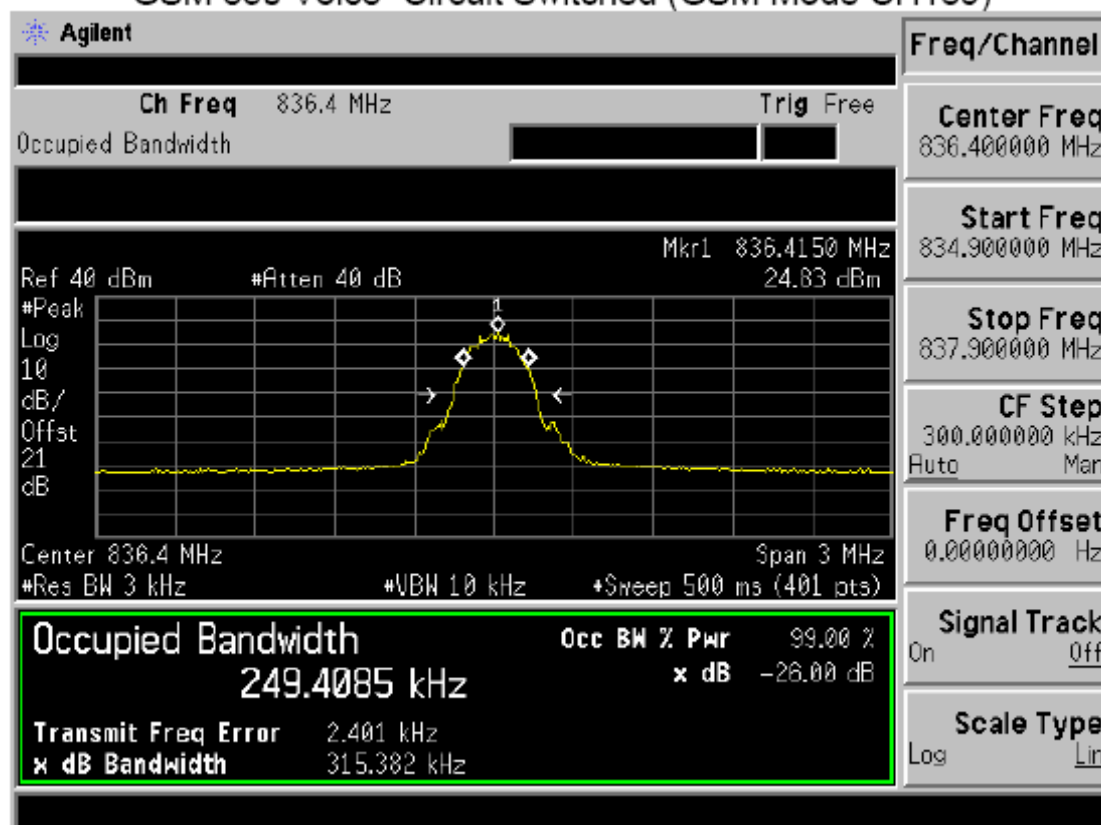
3.2.3 Test Data

According to Part 2.1049, 22.917(b).

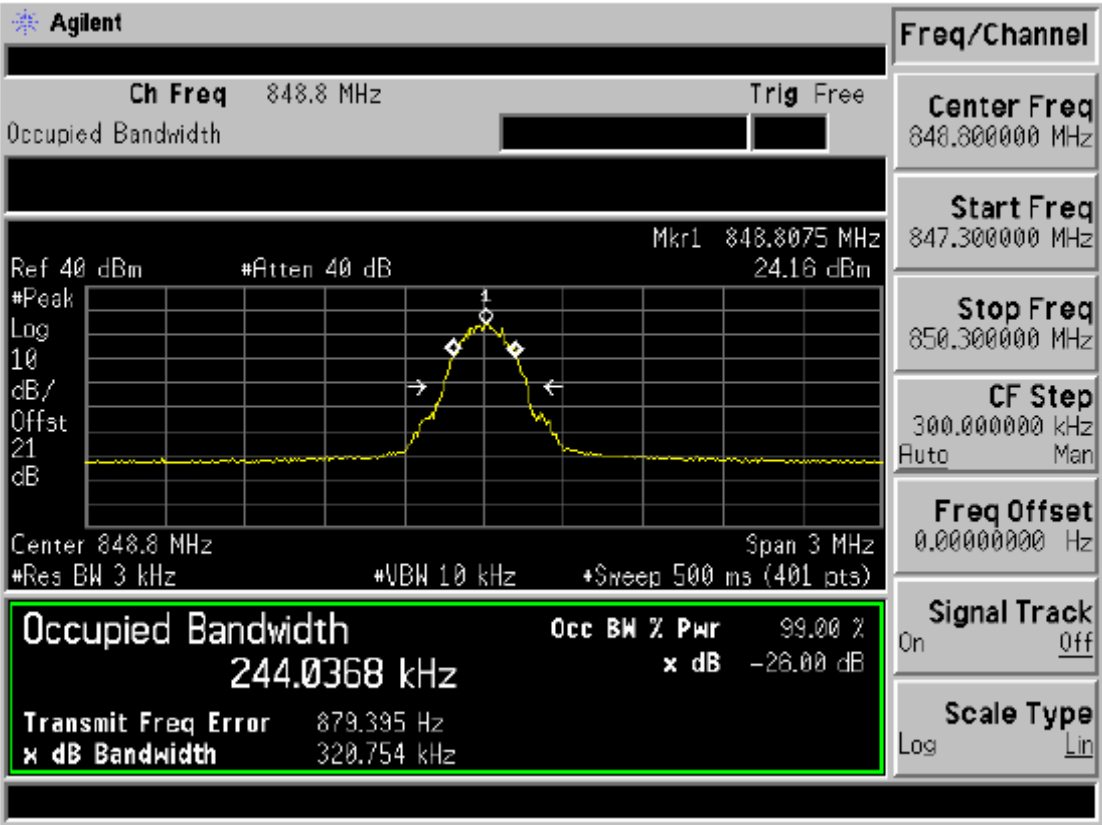
GSM 850 Voice- Circuit Switched (GSM Mode CH 128)



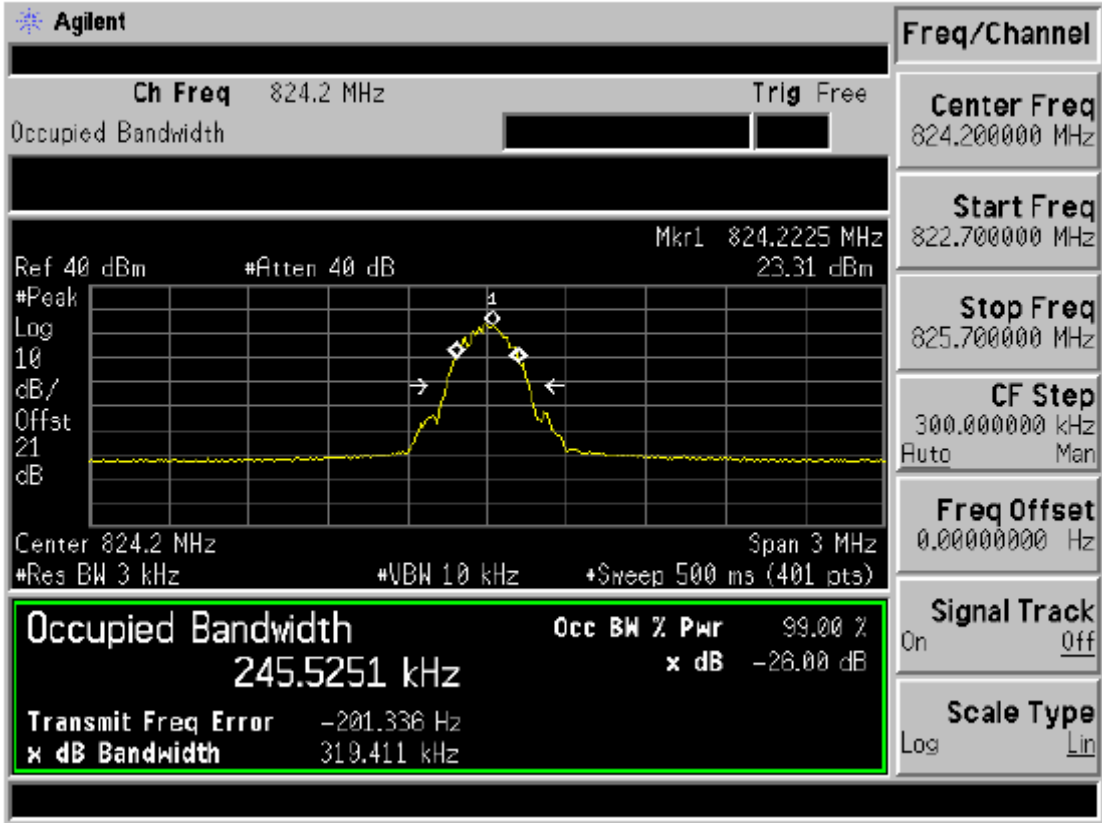
GSM 850 Voice- Circuit Switched (GSM Mode CH189)



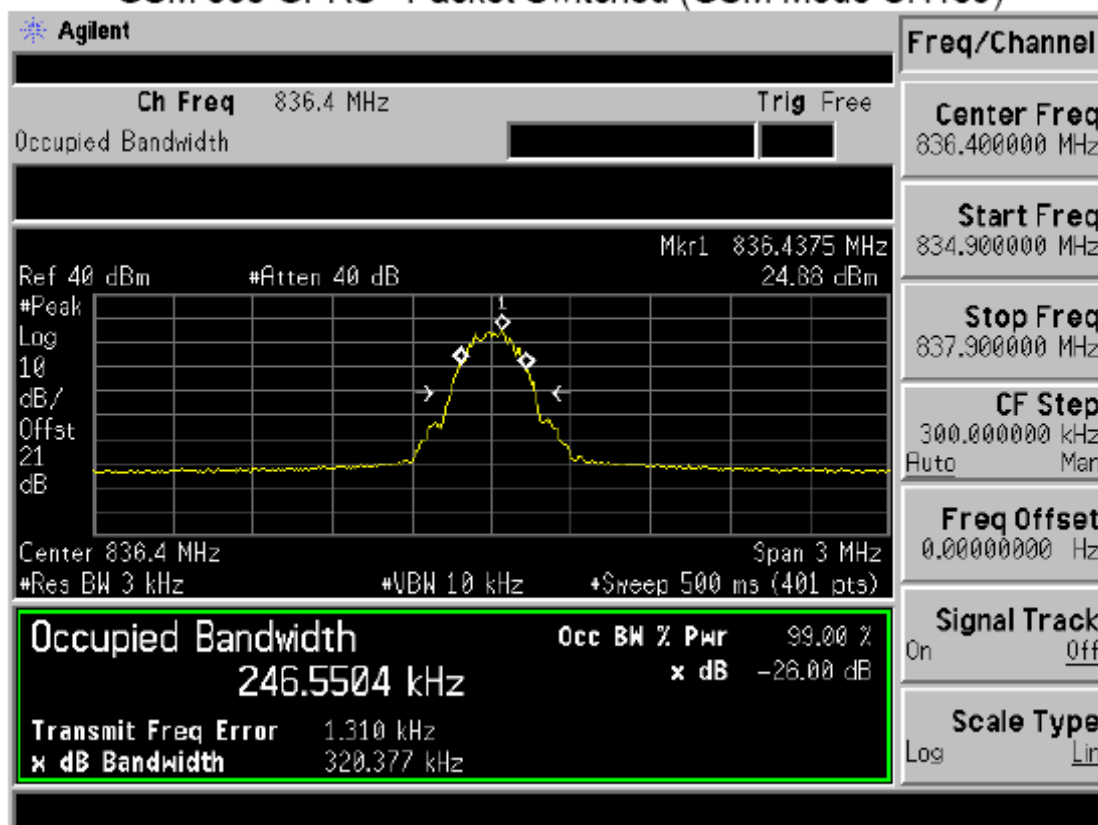
GSM 850 Voice- Circuit Switched (GSM Mode CH 251)



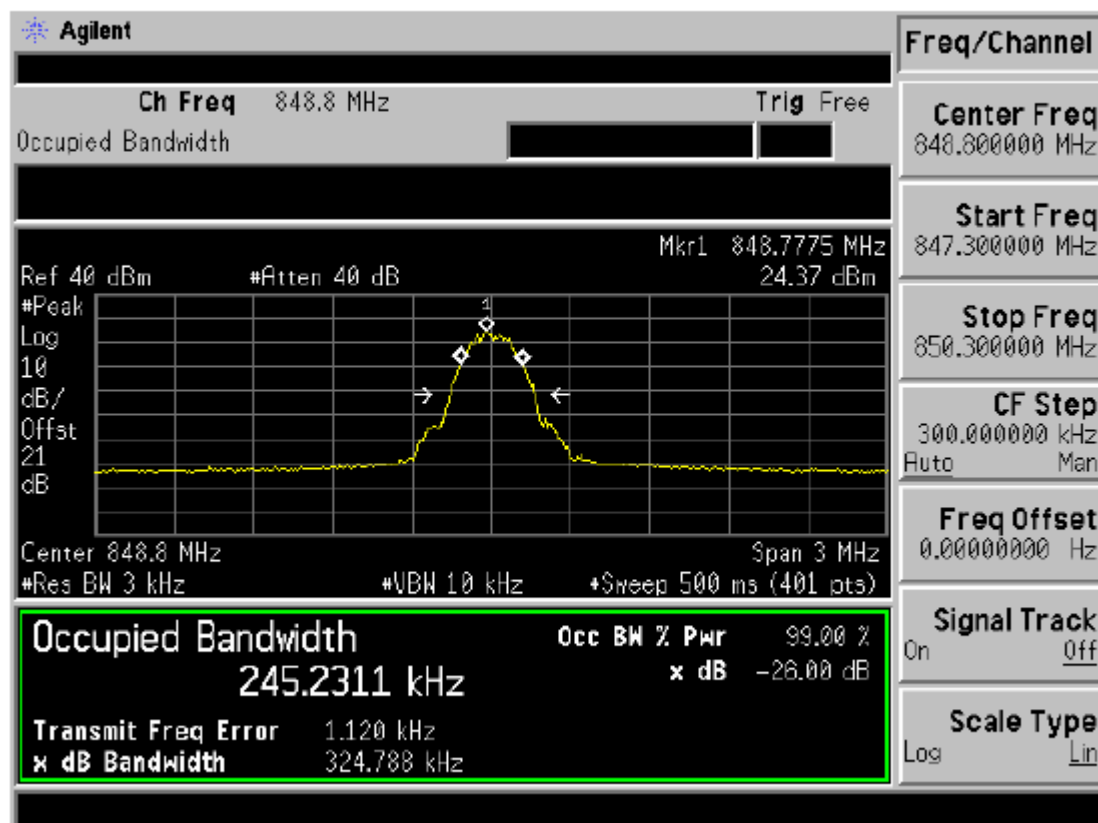
GSM 850 GPRS - Packet Switched (GSM Mode CH 128)



GSM 850 GPRS - Packet Switched (GSM Mode CH189)

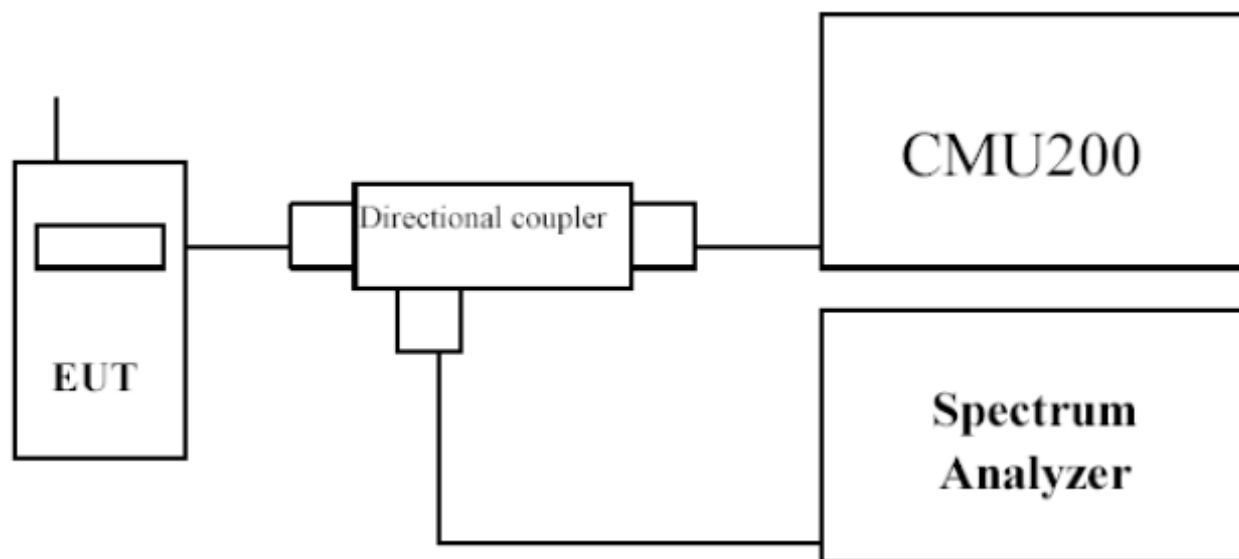


GSM 850 GPRS - Packet Switched (GSM Mode CH 251)



3.3 Band edge

3.3.1 Test Setup



3.3.2 Limits

Cellular Band Transmitter limits for narrowband spurious emission

Lower Block Edge Test Frequencies	Upper Block Edge Test Frequencies
Block A Channel : 128 Frequency : 824.2 MHz	Block B Channel : 251 Frequency : 848.8 MHz

PCS Band Transmitter limits for narrowband spurious emission

Lower Block Edge Test Channels/Frequencies	Upper Block Edge Test Channels/Frequencies
Block A Channel : 512 Frequency : 1850.2 MHz	Block C Channel : 810 Frequency : 1909.8 MHz

3.3.3 Test Procedure

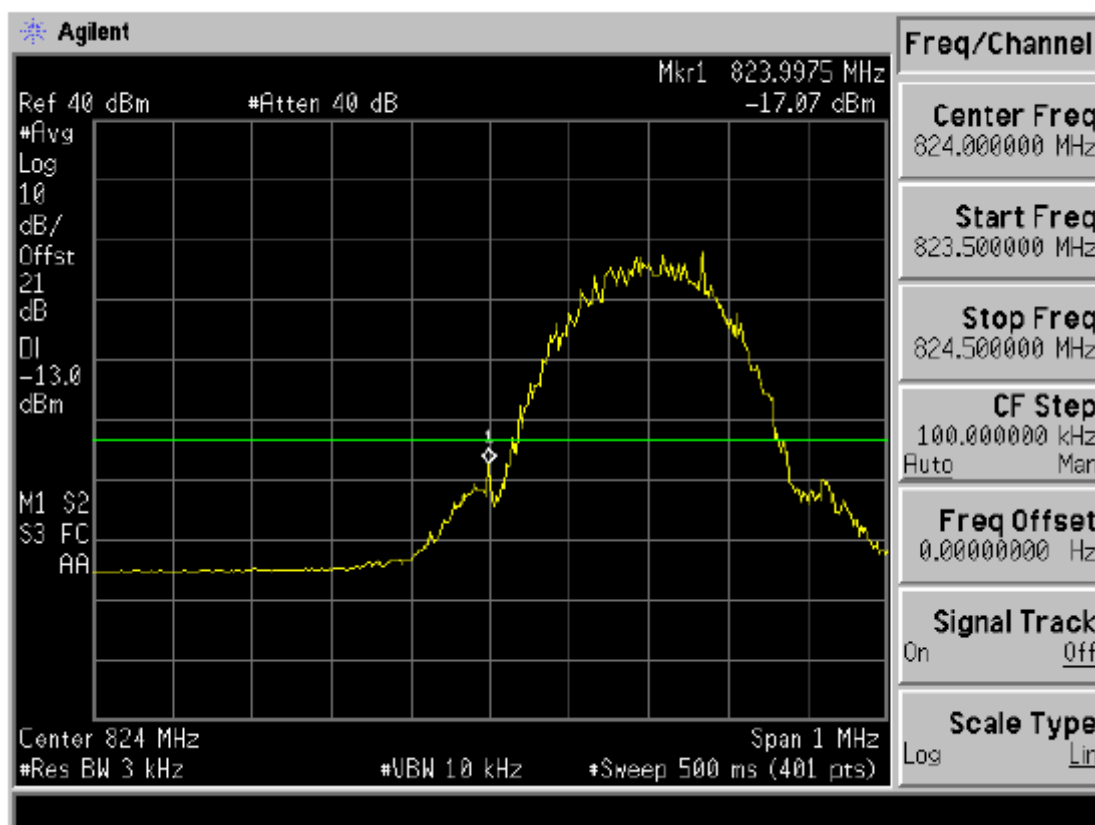
In accordance with Part 22.917, at least 1% of the emission bandwidth was used for the resolution and video bandwidths up to 1MHz away from the Block Edge. At greater than 1MHz, the resolution and video bandwidth were increased to 1MHz.

The reference power and path losses of all channels used for testing in each frequency block were measured.

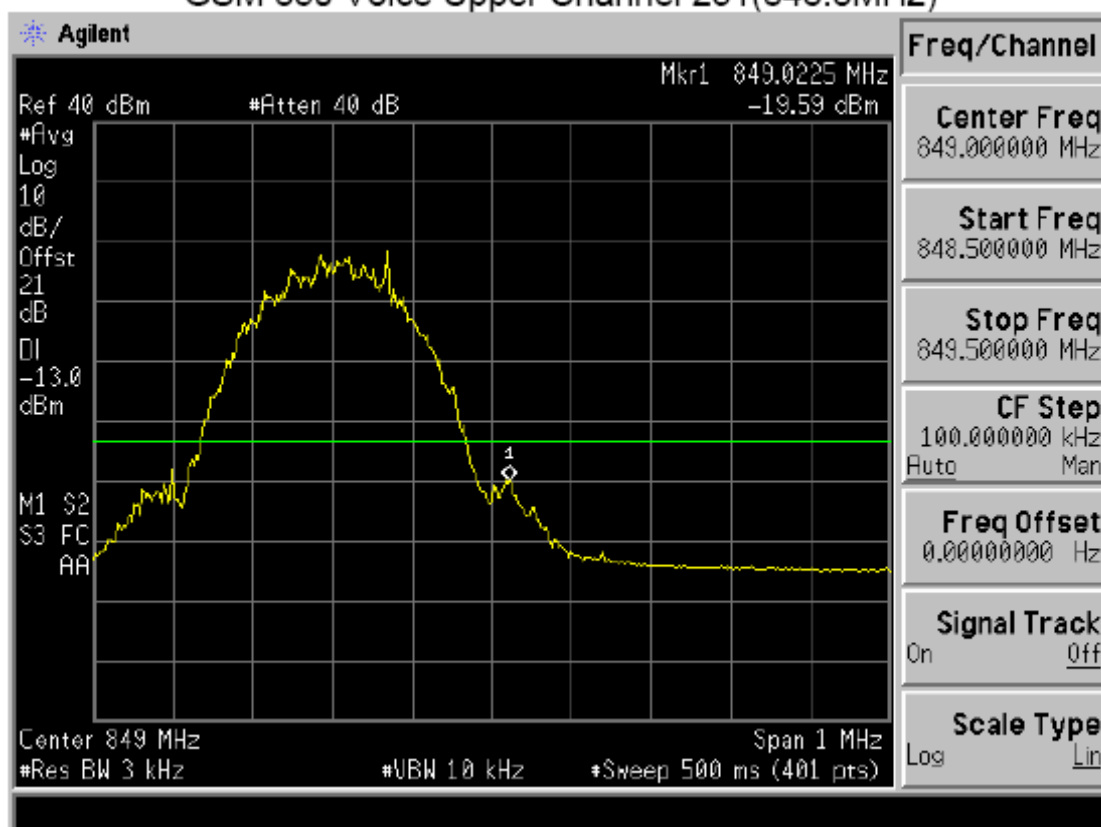
3.3.4 Test Data

According to Part 2.1049, 22.917.

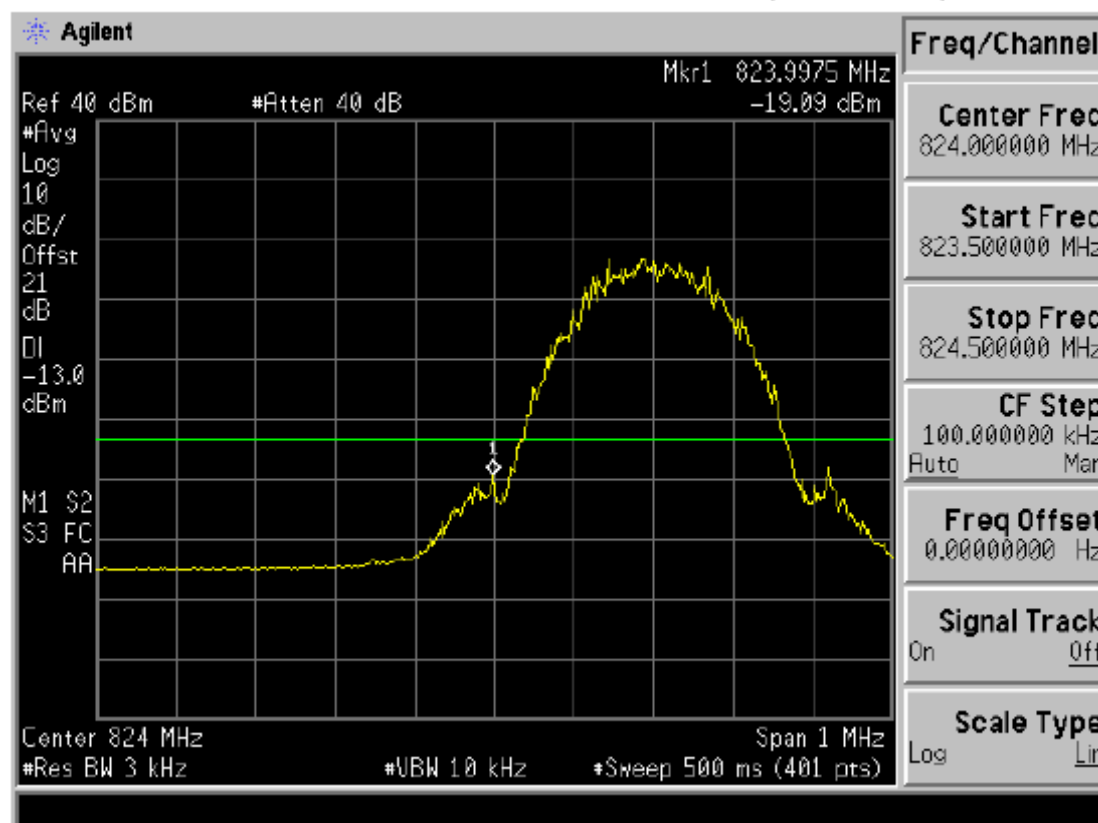
GSM 850 Voice Lower Channel 128 (824.2MHz)

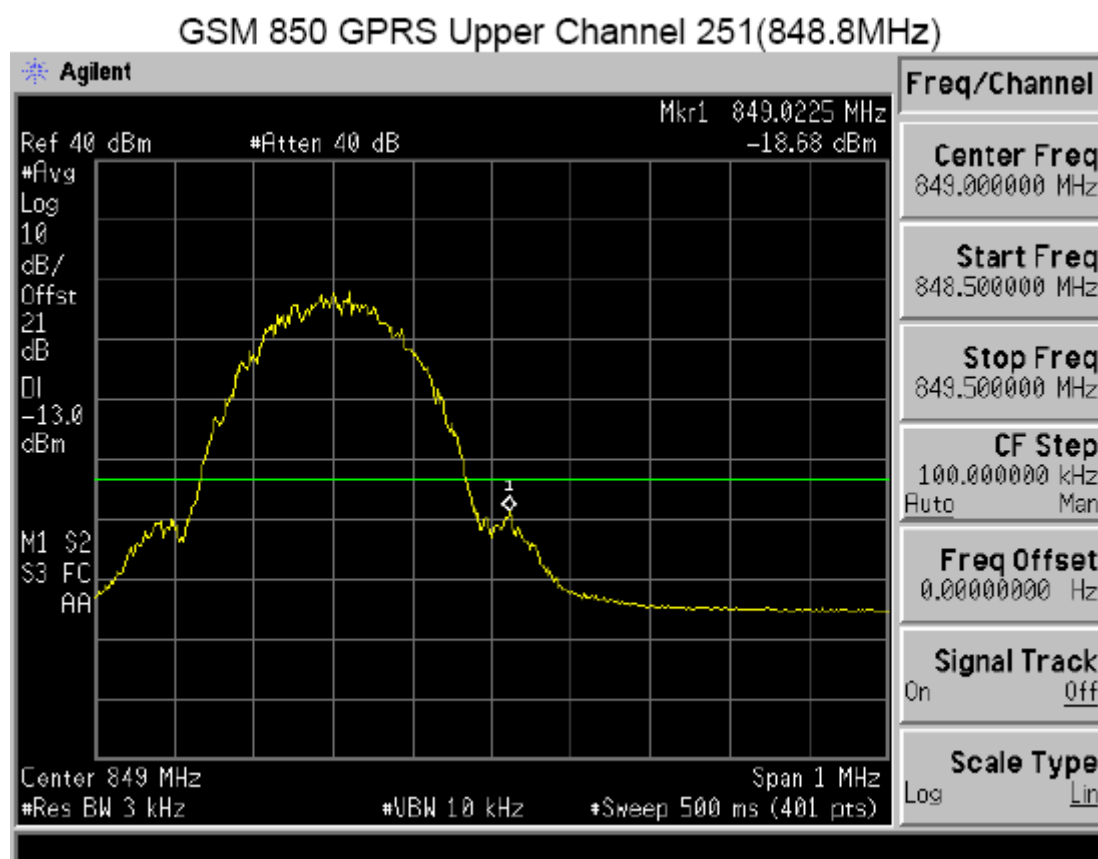


GSM 850 Voice Upper Channel 251(848.8MHz)



GSM 850 GPRS Lower Channel 128 (824.2MHz)

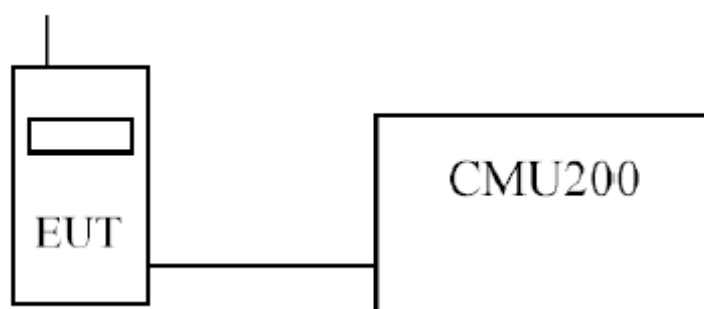




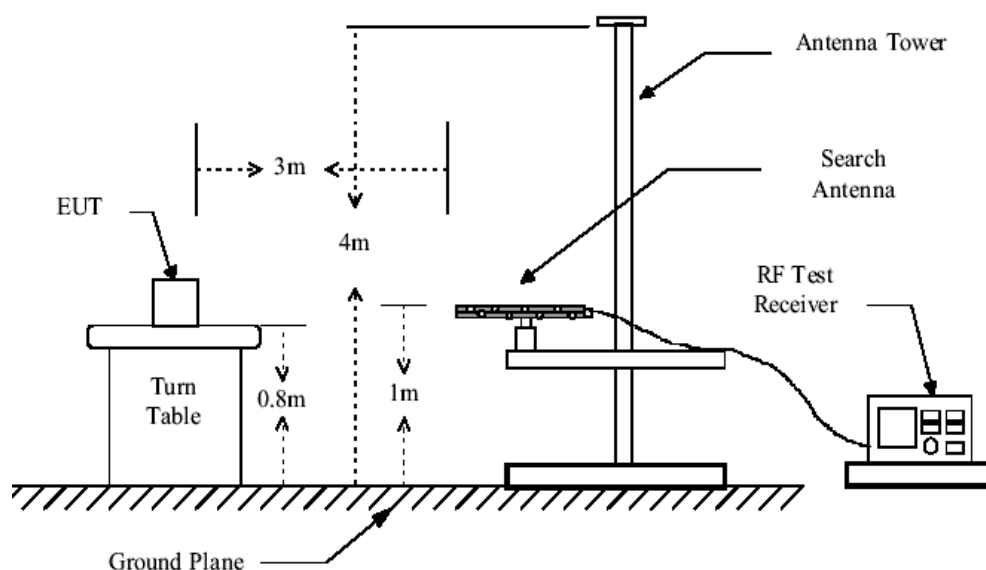
3.4 Spurious Emission

3.4.1 Test Setup

Conducted Spurious



Radiated Spurious



3.4.2 Limits

Limit	<-13dBm
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$43 + 10\log(P)$ down on the carrier where P is the power in Watts.

3.4.3 Test Procedure

In accordance with Part 2.1051, the spurious emissions from the antenna terminal were measured. The transmitter output power was attenuated using a combination of filters and attenuators and the frequency spectrum investigated from 30MHz to 20GHz. The EUT was set to transmit on full power. The EUT was tested on Low, middle and High channels for both power levels. The resolution and video bandwidth was set to 3MHz in accordance with Part 22.917. The spectrum analyzer detector was set to Max Hold.

In addition, measurements were made up to the 10th harmonic of the fundamental.

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

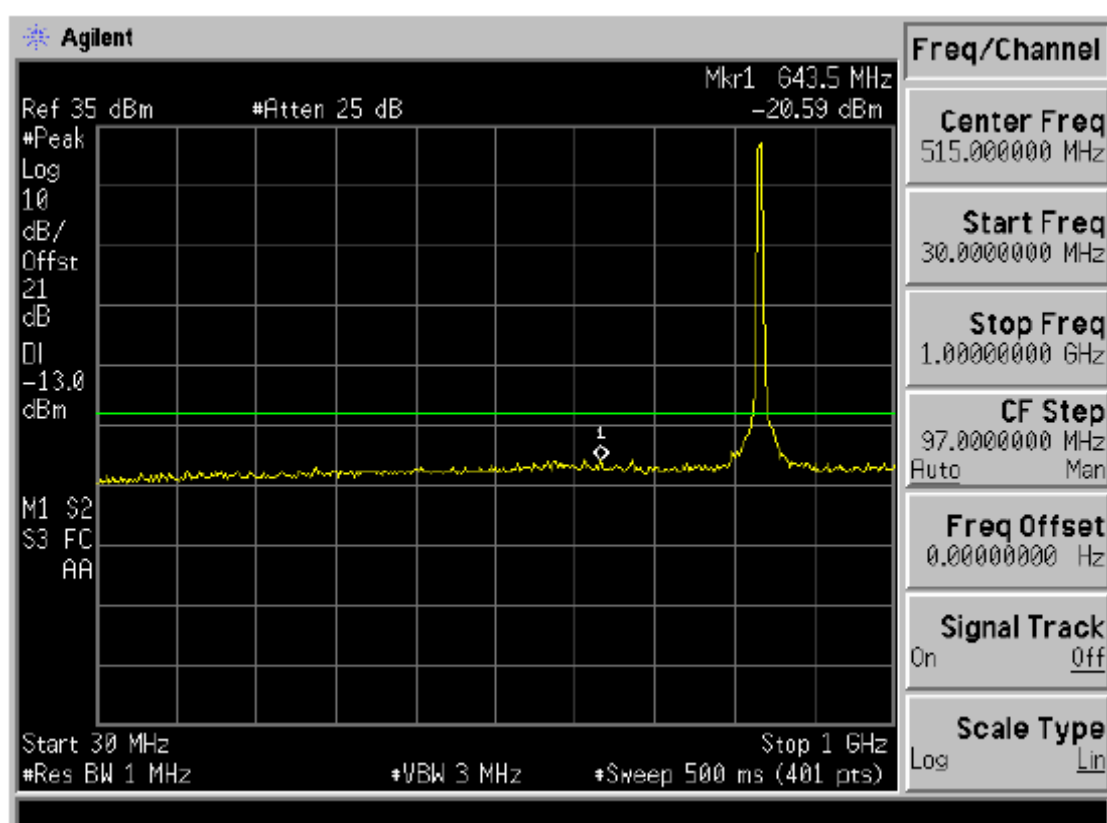
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to

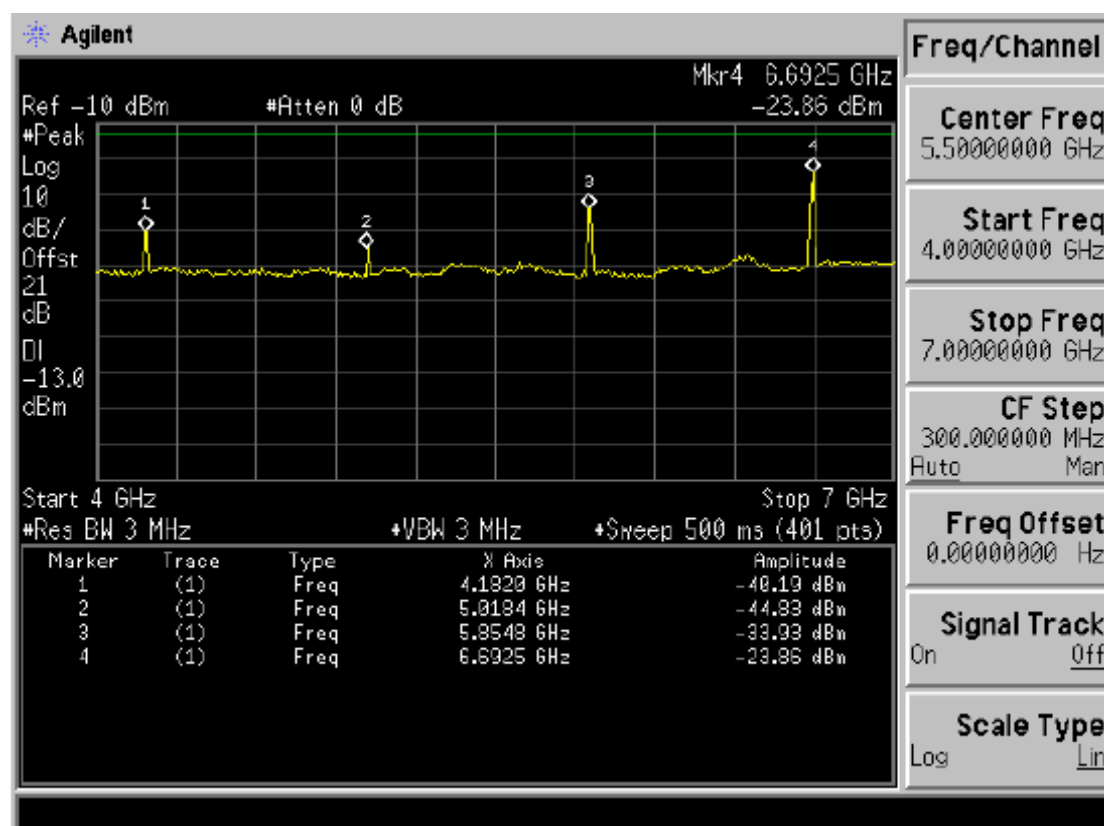
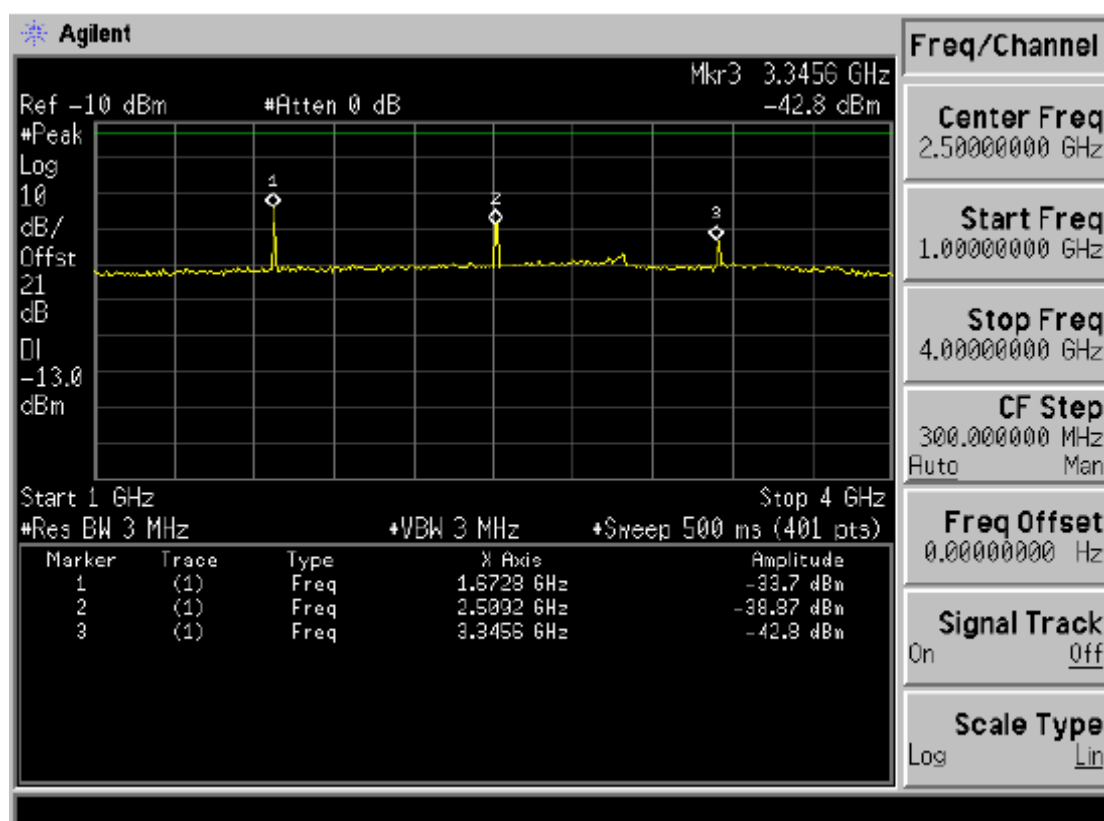
TIA/EIA 603-C on radiated measurement.

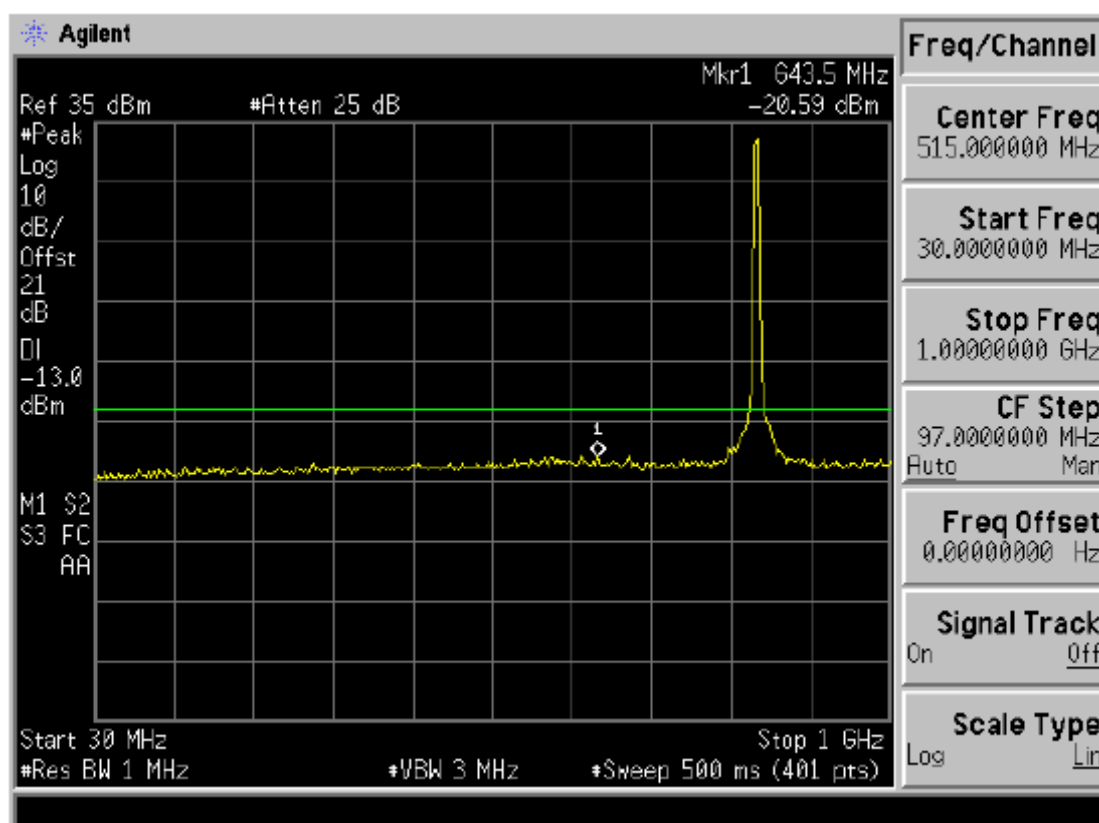
3.4.4 Test Data

1. Conducted spurious
GSM 850 Voice Middle-Channel 189

Frequency (MHz)	Reading Level (dBm)	Path Loss (dB)	Emission Level (dBm)	Limit (dBm)
1672.8	-33.700	0.58	-33.120	-13
2509.2	-38.870	0.7	-38.170	-13
3345.6	-42.800	1.01	-41.790	-13
4182	-40.190	1.18	-39.010	-13
5018.4	-44.830	1.23	-43.600	-13
5854.8	-33.930	1.45	-32.480	-13
6691.2	-23.860	1.56	-22.300	-13
7527.6	-46.860	1.59	-45.270	-13
8364	-48.300	1.82	-46.480	-13

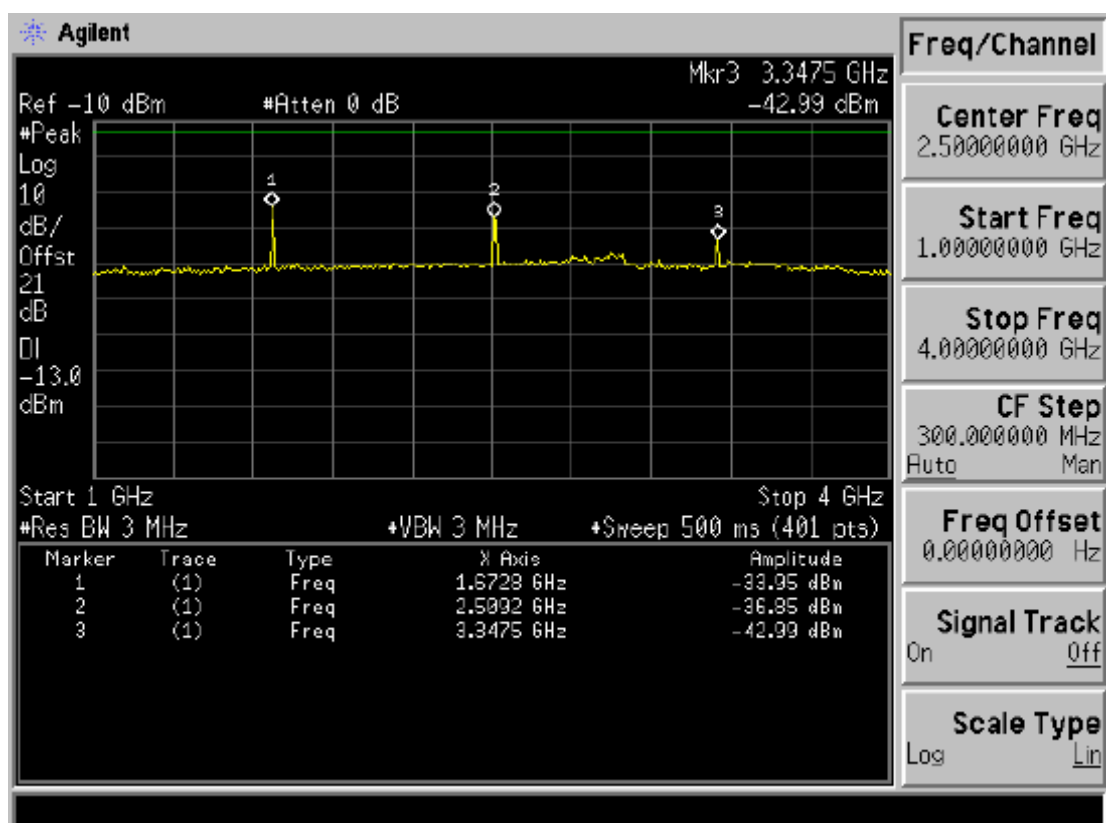
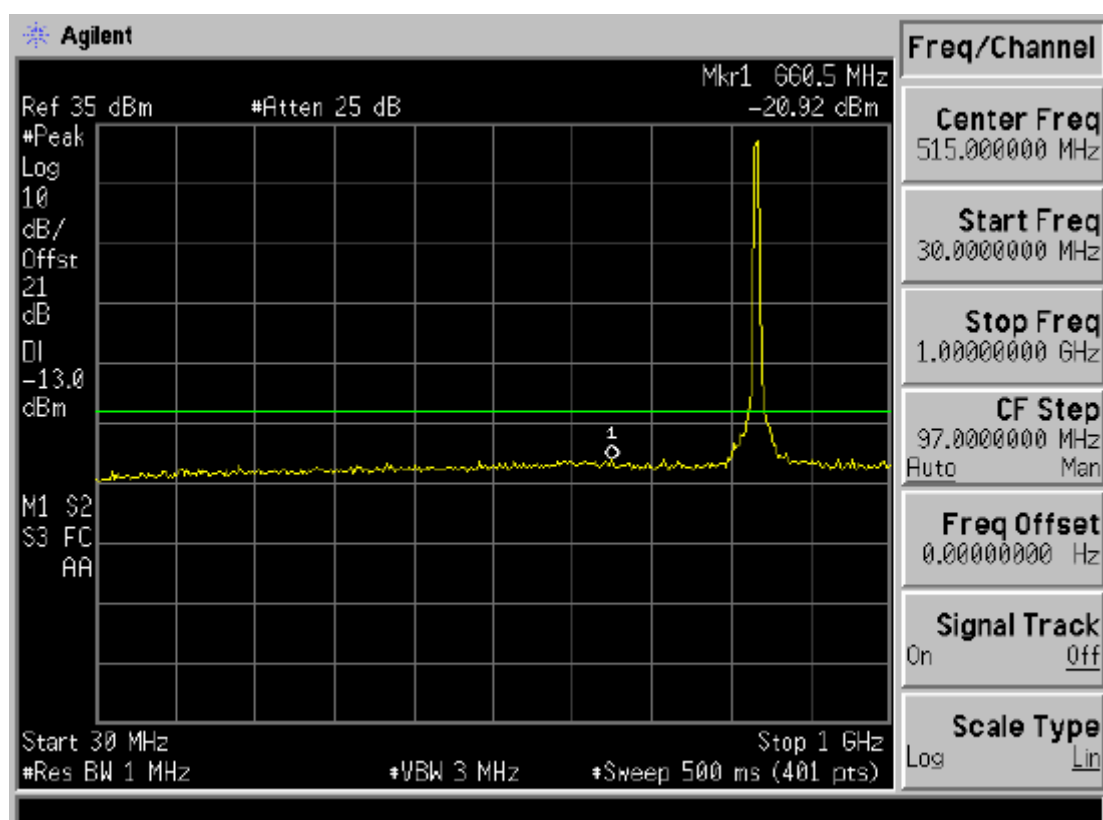


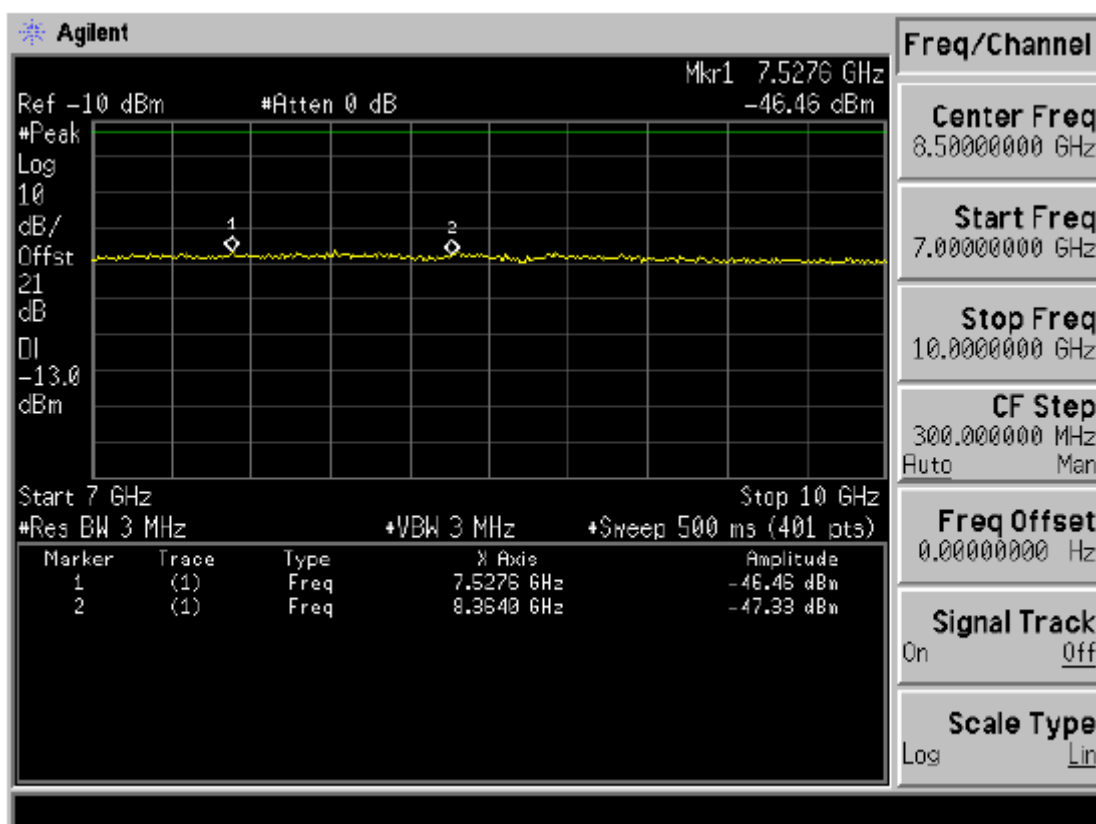
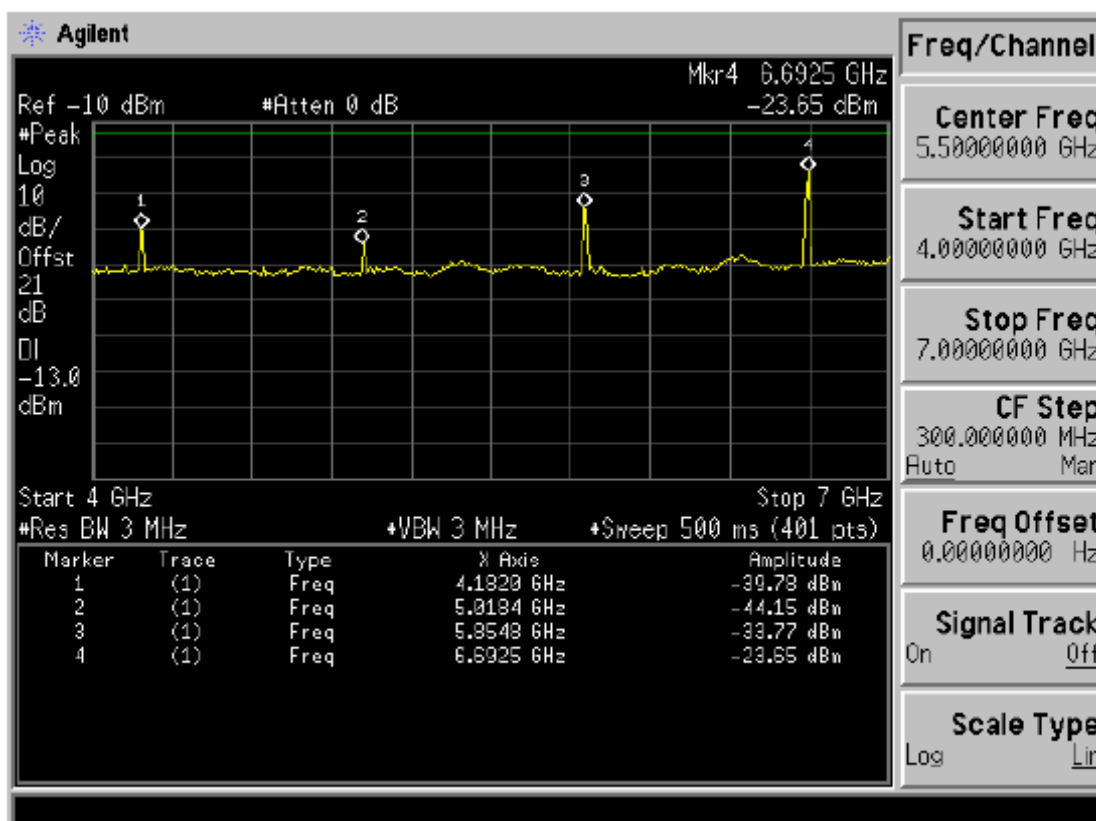




GSM 850 GPRS Middle-Channel 189

Frequency (MHz)	Reading Level (dBm)	Path Loss (dB)	Emission Level (dBm)	Limit (dBm)
1672.8	-33.950	0.58	-33.370	-13
2509.2	-36.850	0.7	-36.150	-13
3345.6	-42.990	1.01	-41.980	-13
4182	-39.780	1.18	-38.600	-13
5018.4	-44.150	1.23	-42.920	-13
5854.8	-33.770	1.45	-32.320	-13
6691.2	-23.650	1.56	-22.090	-13
7527.6	-46.460	1.59	-44.870	-13
8364	-47.330	1.82	-45.510	-13





2. Radiated Emission

Channel 189 (GSM 850 Voice)

Frequency	Reading Level	Signal Generator Level	Cable Loss	Antenna Gain	EIRP Value	Limit
(GHz)	(dBm)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)

Horizontal

1672.8	-34.330	-39.020	1.630	9.800	-30.850	-13
2509.2	-47.740	-47.907	2.100	10.600	-39.407	-13
3345.6	-55.820	-57.246	2.350	12.300	-47.296	-13
4182	-58.310	-57.831	2.700	12.600	-47.931	-13
5018.4	-56.590	-52.795	2.830	12.700	-42.925	-13
5854.8	-56.360	-50.936	3.200	13.000	-41.136	-13

Vertical

1672.8	-35.210	-39.527	1.630	9.800	-31.357	-13
2509.2	-49.230	-49.927	2.100	10.600	-41.427	-13
3345.6	-55.550	-57.484	2.350	12.300	-47.534	-13
4182	-57.430	-56.676	2.700	12.600	-46.776	-13
5018.4	-54.710	-51.508	2.830	12.700	-41.638	-13
5854.8	-53.710	-48.765	3.200	13.000	-38.965	-13

Note:

1. Receiver setting (Peak Detector) : RBW:3MHz; VBW:3MHz
2. EIRP Value = Signal Generator Level + Antenna Gain - Cable Loss
3. Spurious emissions past 6 GHz are not shown, due to the magnitude of spurious emissions attenuated more than 20 dB below the limit.

Channel 189 (GSM 850 GPRS)

Frequency	Reading Level	Signal Generator Level	Cable Loss	Antenna Gain	EIRP Value	Limit
(GHz)	(dBm)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)

Horizontal

1672.8	-33.480	-38.170	1.630	9.800	-30.000	-13
2509.2	-47.350	-47.517	2.100	10.600	-39.017	-13
3345.6	-55.660	-57.086	2.350	12.300	-47.136	-13
4182	-57.460	-56.981	2.700	12.600	-47.081	-13
5018.4	-57.820	-54.025	2.830	12.700	-44.155	-13
5854.8	-57.570	-52.146	3.200	13.000	-42.346	-13

Vertical

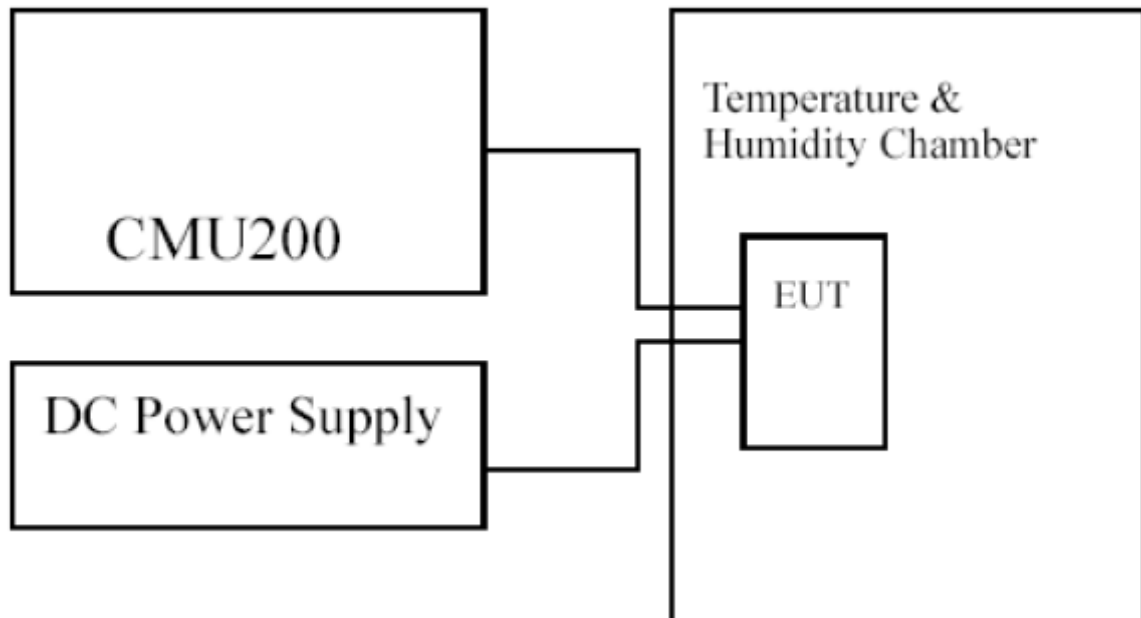
1672.8	-35.380	-39.697	1.630	9.800	-31.527	-13
2509.2	-49.740	-50.437	2.100	10.600	-41.937	-13
3345.6	-57.640	-59.574	2.350	12.300	-49.624	-13
4182	-57.890	-56.920	2.700	12.600	-47.020	-13
5018.4	-56.460	-53.258	2.830	12.700	-43.388	-13
5854.8	-55.450	-50.505	3.200	13.000	-40.705	-13

Note:

1. Receiver setting (Peak Detector) : RBW:3MHz; VBW:3MHz
2. EIRP Value = Signal Generator Level + Antenna Gain - Cable Loss
3. Spurious emissions past 6 GHz are not shown, due to the magnitude of spurious emissions attenuated more than 20 dB below the limit.

3.5 Spurious Emission

3.5.1 Test Setup



3.5.2 Limit

Limit	<±2.5ppm
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3.5.3 Test Procedure

The frequency stability of transmitter is measured by:

(a) Temperature: The temperature is varied from -30°C to 50°C in 10°C increment using a standard temperature & Humidity chamber.

(b) Primary Supply Voltage: The primary supply voltage is varied 85% to 115% of the nominal value for non hand-carried equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating endpoint which shall be specified by the manufacturer.

The EUT was connected via the base station simulator. Universal Radio Communication Tester, (CMU200), was used to measure The Frequency Error. The maximum result of measurements was recorded.

3.5.4 Test Data

According to Part 2.1055,22.355

GSM 850 Voice/ Channel 189

Frequency Stability Under Temperature Variations

Temperature Interval(°C)	Test Frequency (GHz)	Deviation (Hz)	Limit (KHz)
-30	0.836	52	±2.09
-20	0.836	-36	±2.09
-10	0.836	39	±2.09
0	0.836	35	±2.09
10	0.836	-26	±2.09
20	0.836	-23	±2.09
30	0.836	-29	±2.09
40	0.836	-37	±2.09
50	0.836	41	±2.09

Voltage Variations

DC Voltage (V)	Test Frequency (GHz)	Deviation (Hz)	Limit (KHz)
4.2	0.836	27	±2.09
3.7	0.836	-23	±2.09
3.2	0.836	-19	±2.09

GSM 850 GPRS / Channel 189

Frequency Stability Under Temperature Variations

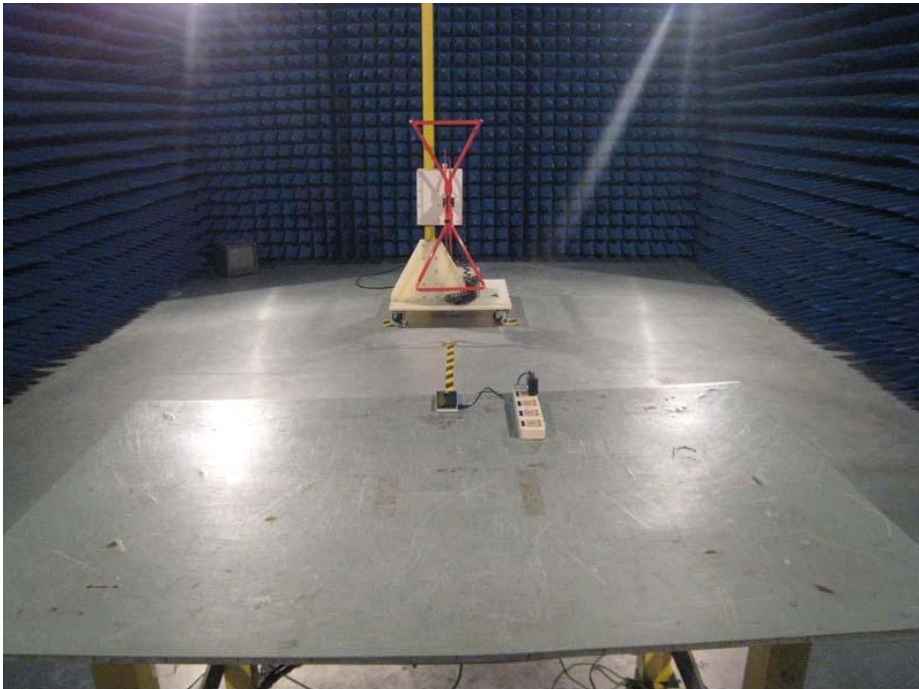
Temperature Interval(°C)	Test Frequency (GHz)	Deviation (Hz)	Limit (KHz)
-30	0.836	-44	±2.09
-20	0.836	-50	±2.09
-10	0.836	-46	±2.09
0	0.836	-23	±2.09
10	0.836	-29	±2.09
20	0.836	-28	±2.09
30	0.836	-31	±2.09
40	0.836	-36	±2.09
50	0.836	-26	±2.09

Voltage Variations

DC Voltage (V)	Test Frequency (GHz)	Deviation (Hz)	Limit (KHz)
4.2	0.836	32	±2.09
3.7	0.836	-28	±2.09
3.2	0.836	36	±2.09

4 Photographs

4.1 Radiated Spurious Emission Test Setup



4.2 EUT Constructional Details









