MOTOROLA

PRODUCT SAFETY AND COMPLIANCE
EMC LABORATORY

EMC TEST REPORT - Addendum

Test Report Number –24426-1

Report Date – 2011-05-20

The test results contained herein relate only to the model(s) identified. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics.

Signature: lei yang Name: Lei Yang

Title: EMC Project Manager Test: 2011-03-18 to 2011-05-18

As the responsible test lab manager, I hereby declare that the model tested as specified in this report conforms to the requirements indicated.

Signature: Name: Yilin Zhao

Title: Test Lab Manager Date: 2011-05-20

FCC Registration Number: 177885
IC Registration Number: 109AW-1

ADR Testing Service location ADR BJ
ISO/IEC-17025:2005 accredited by UKAS

UKAS TESTING
2404

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Test Report Details

Tests Performed By:

ADR Testing Service
Location Code: ADR BJ
Motorola (Beijing) Mobility Technologies Co., Ltd
Asia Global Compliance Labs
No.1 Wang Jing East Road
Chao Yang District
Beijing, 100102, P. R. China
Phone: +86 10 8473 2610
FCC Registration Number: 177885
IC Registration Number: 109AW-1

ADR Testing Service
Location Code: ADR LV
Motorola Mobility Inc
Product Safety and Compliance Group
600 North US Hwy 45
Libertyville, IL 60048
PH (847) 523-6167 Fax (847) 523-4538
FCC Registration Number: 316588
Industry Canada Number: 109O-1

Tests Requested By:

Motorola Mobility, INC.
600 North US Hwy 45
Libertyville, IL 60048
United States

Product Type: Cellular phone

Signaling Capability: WCDMA 1900, GSM 850/1900, HSDPA, HSUPA, Edge, GPRS, Bluetooth, 802.11b/802.11g/802.11n

Serial Number: TA0190015J, TA0190016V, TA019000S4

(Note: Units TA0190015J, TA0190016V are for radiated power and field strength of spurious emissions testing performed in ADR LV

Unit TA019000S4 is for other cases performed in ADR BJ)

FCC ID: IHDT56MW2

Project number: 24426-1

Testing Complete Date: 2011-05-18

Applicable Standards

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

__X__ Part 2
__X__ Part 22 Subpart H – Public Mobilie Services
__X__ Part 24 Subpart E – Personal Communications Services

Applicable Standards: ANSI C63.4-2003, ANSI/TIA-603-C-2004, RSS-Gen Issue 3, RSS-132 Issue 2, RSS-133 Issue 5.

Summary of Testing

Test #	Test Name	Pass/Fail
1	RF Power Output	NA
2	ERP (Effective Radiated Power)	Pass
3	EIRP (Effective Isotropic Radiated Power)	Pass
4	Occupied Bandwidth	Pass
5	Spurious Emissions at Antenna Terminal	Pass
6	Field Strength of Spurious Emissions	Pass
7	Frequency Stability	Pass

Test #	Test Name	Margin with respect to the Limit
1	RF Power Output	NA
2	ERP (Effective Radiated Power)	See results
3	EIRP (Effective Isotropic Radiated Power)	See results
4	Occupied Bandwidth	See Plots
5	Spurious Emissions at Antenna Terminal	See results
6	Field Strength of Spurious Emissions	See results
7	Frequency Stability	See results

The margin with respect to the limit is the minimum margin for all modes and bands.

General and Special Conditions

When applicable, EMC testing was performed with a fully charged Model SNN5875A 1820mAH battery for radiated power and field strength of spurious emissions cases in ADR LV, and Model SNN5843A 1420mAh battery for other cases in ADR BJ. Where a battery could not be used due to the need for a controlled variation of input voltage, an external power supply was utilized.

All testing was done in an indoor controlled environment. The temperature and the relative humidity were maintained within the ANSI C63.4-2003 Standard requirements during the entire duration of testing.

Equipment and Cable Configurations

The EUT was tested in a stand-alone configuration that is representative of typical use.

[ADR BJ]

Equipment	Model/Type	Serial Number	Operational Range	Calibration Due Date
EMI analyzers	ESU 40	100036	20 Hz – 40 GHz	11.05.2011
Pre Amplifiers	PA-02-0001:	2007343	10 kHz – 3 GHz	06.26.2011
	PA-02-218	2007344	3 GHz – 18 GHz	06.26.2011
	PA-02-5	2007345	18 GHz – 40 GHz	06.26.2011
Radio com. Tester	CMU 200	112790	GSM 850/900/1800/1900 UMTS, CDMA, Bluetooth	N/A
Band Reject Filter	WRCD	N/A	GSM 850/900/1800/1900 UMTS, CDMA	N/A
	4N45-24241/3/6	N/A	WLAN	N/A
EMI analyzers	R&S ESCI	100650	9 kHz – 3 GHz	03.08.2012
LISN	ENV216	100057	9 kHz – 30 MHz	12.20.2012
Environment Chamber	Votsch VT4004	354627030000020	-50^0C -150^0C	12.30.2011
DC Power Supply	Agilent E3632A	MY40021519	15V/7A	10.16.2012
Power meter	Agilent E4416A	MY451000906	NA	01.28.2012
Power sensor	Agilent E9323A	MY44420783	50MHz-6GHz	01.28.2012

The antennas used in the various tests are listed in the below table.

Antenna	Type	Serial Number	Operational Range	Calibration Due Date
Hybrid-log periodic	TDK HLP 3003C	130361	30 MHz – 3 GHz	03.01.2014
Double ridged Horn	TDK HRN0118	130303	1 GHz – 18 GHz	01.21.2014
Double ridged Horn	ETS HRN3116	00071938	18 GHz – 40 GHz	10.17.2011

All test equipments was within their calibration date during the time of testing. When equipment went out of calibration during testing it was replaced using a similar piece of calibrated equipment. All these equipments are listed in the equipment list.

Note that the Agilent power meter, power sensor, LISN and DC power supply are on a two-year calibration cycle. The hybrid antenna and horn antennas are on a three-year calibration cycle. All other equipments are on a one-year calibration cycle.

[ADR LV]

Manufacturer	Equipment Type	Model No.	Serial Number	Calibration Due Date
Rohde & Schwarz	Receiver	ESI26	100001	9/23/2011
Agilent	Signal Generator	83712A	3429A00286	3/26/2013
ETS	DRG Horn Antenna	3115	6222	3/16/2012
A. H. Systems	DRG Horn Antenna	SAS 200/571	265	9/09/2011
Agilent	Power Meter	E4416A	GB41293263	9/11/2011
Agilent	Power Sensor	E9323A	US40412066	8/30/2011
Agilent	Microwave Preamplifier	8449B	3008A00535	10/05/2011

Note that the Agilent power meter and microwave preamplifier are on a two-year calibration cycle. All other equipment is on a one-year calibration cycle. All testing was performed using equipment that was within calibration at the time that the test was performed. No equipment listed in the table above was used after the specified calibration due date. If, during the course of product testing, a piece of equipment went out of calibration and that piece of equipment was needed to complete product testing, a similar piece of calibrated equipment was substituted. If a substitution was made, that new piece of equipment would be listed in the above table along with the piece that was removed from service.

Measurement Procedures and Data

RF POWER OUTPUT

Measurement Procedure

The RF output port of the equipment under test is directly coupled to the input of an Agilent power meter through a 30dB passive attenuator, adaptor (if needed), and specialized RF connector.

Measurement Results

GSM 850

Frequency (MHz)	Power (dBm)
824.2	33.33
836.6	33.39
848.8	33.36

GSM 1900

Frequency (MHz)	Power (dBm)
1850.2	30.18
1880	30.40
1909.8	30.68

EDGE 850

Frequency (MHz)	Power (dBm)
824.2	27.40
836.6	27.45
848.8	27.56

EDGE 1900

Frequency (MHz)	Power (dBm)
1850.2	26.44
1880	26.40
1909.8	25.45

Band	Channel	Conducted power (dBm) for WCDMA modes		Conducted Power (dBm) for WCDMA – HSDPA (Rel 5) Modes				Conducted Power (dBm) for WCDMA – HSPA (HSUPA/HSDPA-Rel 6) Modes				
		RMC	AMR	Subtest 1	Subtest 2	Subtest 3	Subtest 4	Subtest 1	Subtest 2	Subtest 3	Subtest 4	Subtest 5
WCDMA 1900	9262	23.89	23.72	23.83	23.82	23.85	23.82	23.83	23.86	23.91	23.92	23.84
	9400	24.01	23.95	23.85	23.90	23.91	23.92	23.94	23.96	23.98	23.99	23.98
	9538	24.20	24.18	24.12	24.18	24.19	24.08	24.11	23.93	23.80	23.67	23.62

All WCDMA testing was done in RMC mode.

RADIATED POWER (EIRP AND ERP)

Measurement Procedure

The phone was tested in a 16' anechoic chamber with a 2-axis position system that permits taking complete spherical scans of the EUT's radiation patterns. For all tests, the phone was supported in a free space type environment, vertically oriented in the chamber.

All measurements were made with the phone placed in a call using a mobile station test set. The phone was weakly coupled to the test set and configured to transmit in full data rate mode. Radiated power was measured at each 15 degree step. The radiated power was measured using a Rhode & Schwarz FSP Spectrum Analyzer using the Peak Detector. From these measurements, the software calculates the angle at which maximum radiated power occurs for each case, and the radiated power at this angle was extracted from the data. To get ERP (effective radiated power referenced to a half-wave dipole), subtract 2.1 dB from these numbers.

The EUT was tested in all configurations and the highest power level is reported.

Measurement Results

Band	EIRP dBm	ERP dBm
GSM 850	32.83	**30.73**
GSM 1900	**31.05**	28.95
EDGE 850	30.55	**28.45**
EDGE 1900	**30.29**	28.19
WCDMA 1900	**29.89**	27.79

OCCUPIED BANDWIDTH

CFR Part 2.1049, 22.917, 24.238

Measurement Procedure

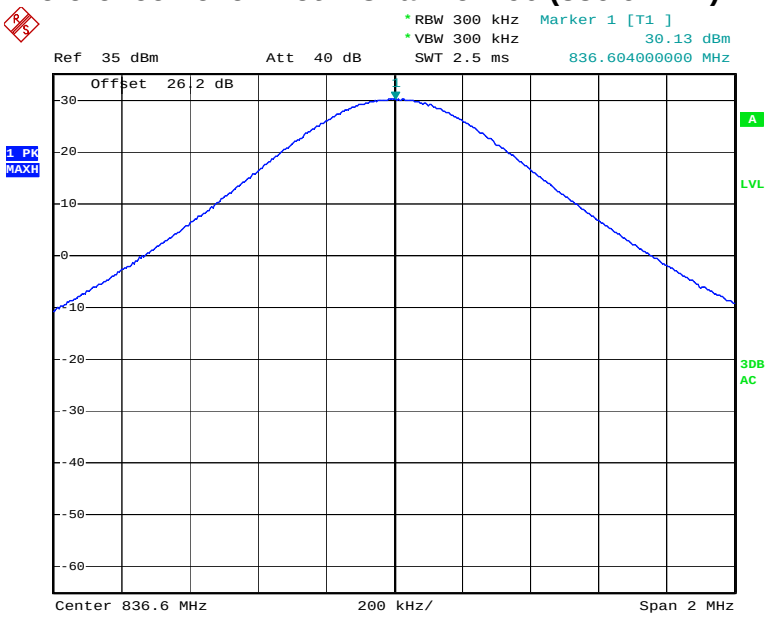
The RF output port of the equipment under test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 20dB passive attenuator for GSM850, PCS1900 and WCDMA1900. The amplitude of the spectrum analyzer is corrected for the attenuator and any other applicable losses. The analyzer is set for Peak Detector and each trace is set for Max Hold. A fully charged battery was used for the supply voltage.

The middle channel within the designated frequency block was measured. For digital modulation, the lower and upper band edge plots are displayed.

Measurement Results

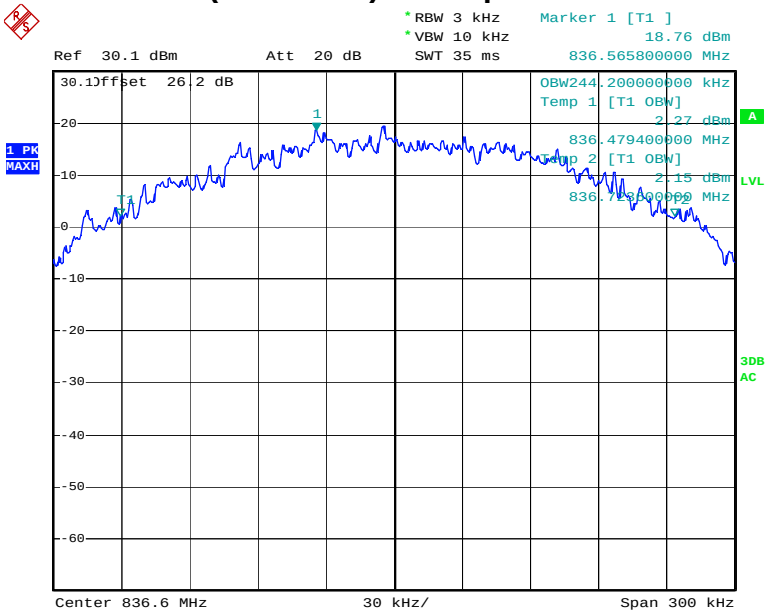
Measurement Results – GSM 850

GSM 850 – Reference Level Plot – Channel 190 (836.6 MHz)



Date: 25.MAR.2011 12:03:26

GSM 850 – Channel 190 (836.6 MHz)– Occupied Bandwidth



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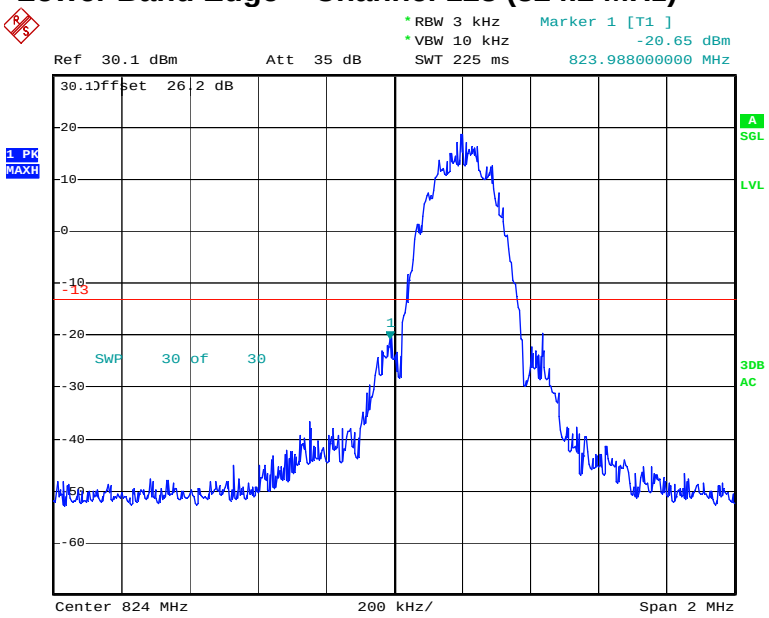
GSM 850 – Lower Band Edge – Channel 128 (824.2 MHz)



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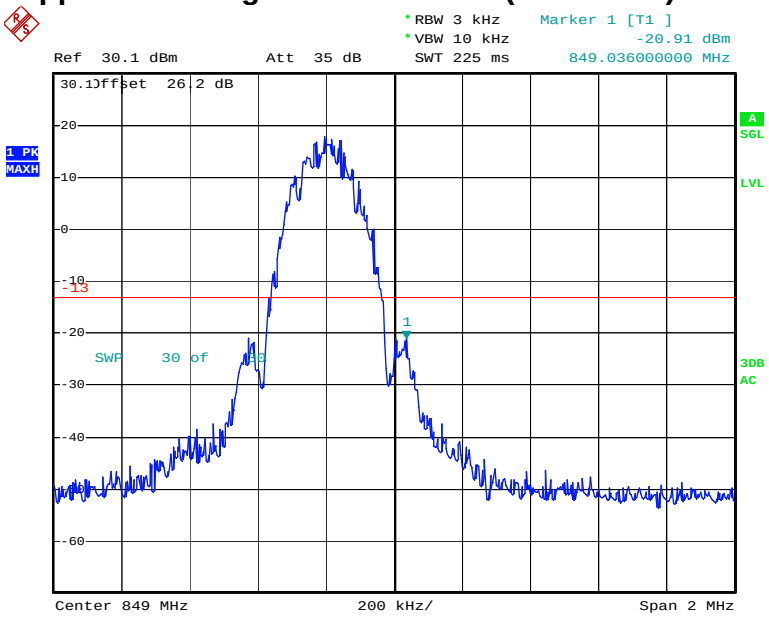
GSM 850 – Upper Band Edge – Channel 251 (848.8 MHz)



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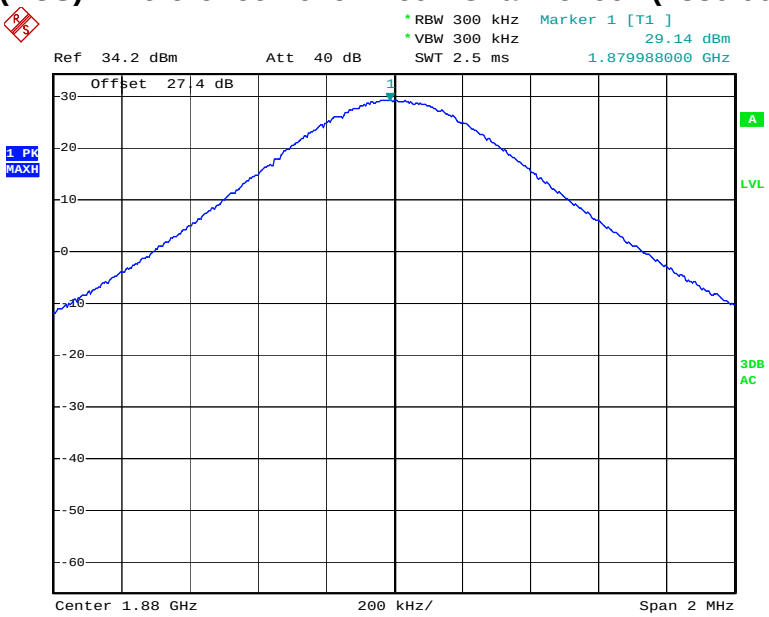
Measurement Results – PCS 1900

GSM 1900(PCS) – Reference Level Plot – Channel 661 (1880.00 MHz)



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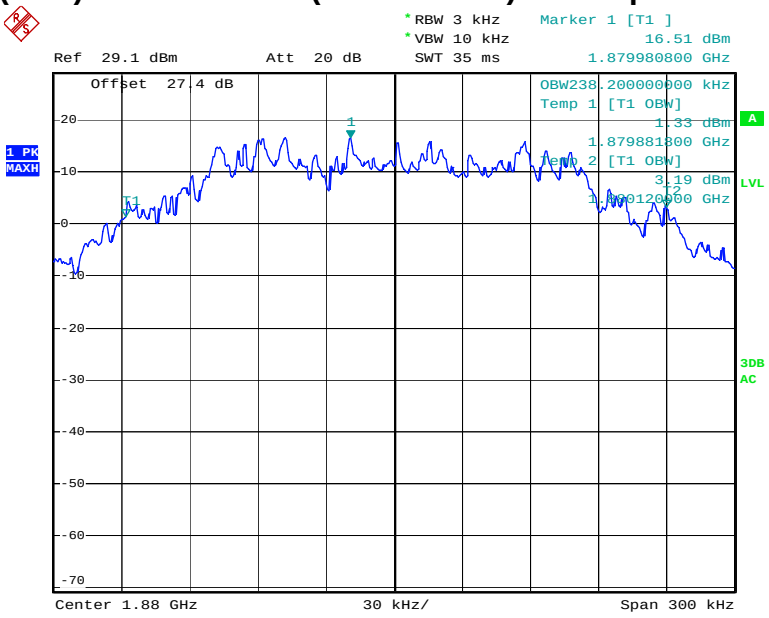
GSM 1900(PCS) – Channel 661 (1880.00 MHz) – Occupied Bandwidth



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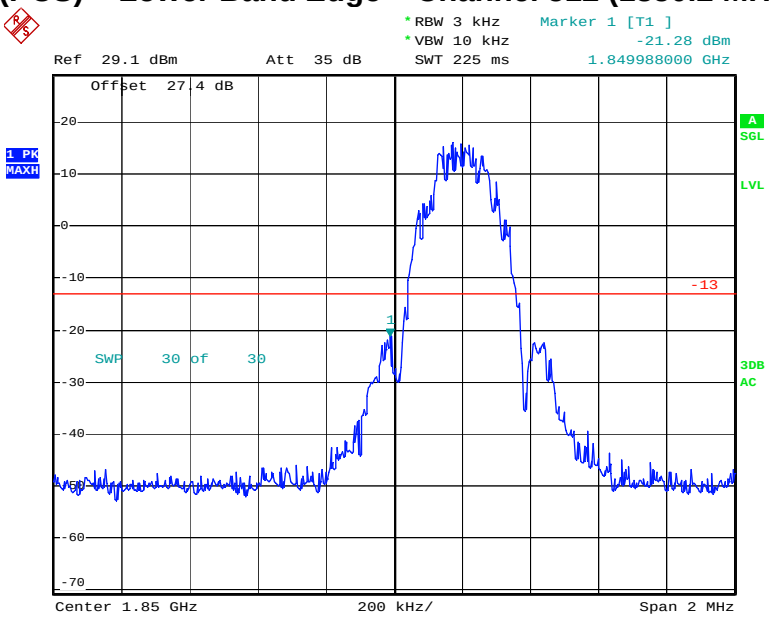
GSM 1900(PCS) – Lower Band Edge – Channel 512 (1850.2 MHz)



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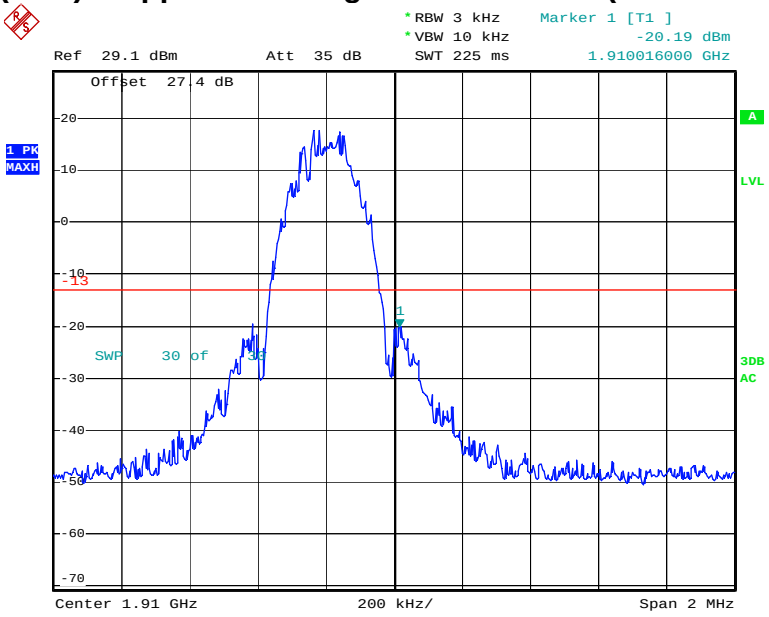
GSM 1900(PCS) – Upper Band Edge – Channel 810 (1909.8 MHz)



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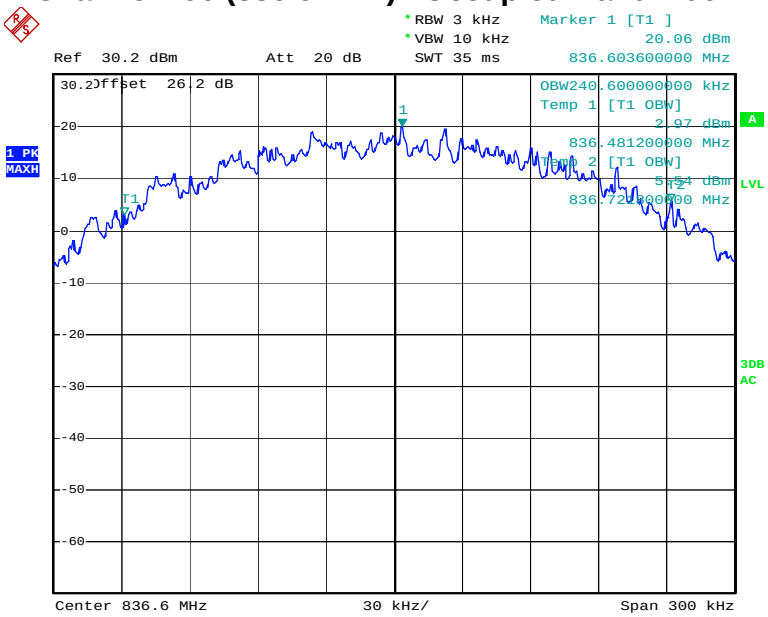
Measurement Results – EDGE 850

EDGE 850 – Channel 190 (836.6 MHz)– Occupied Bandwidth



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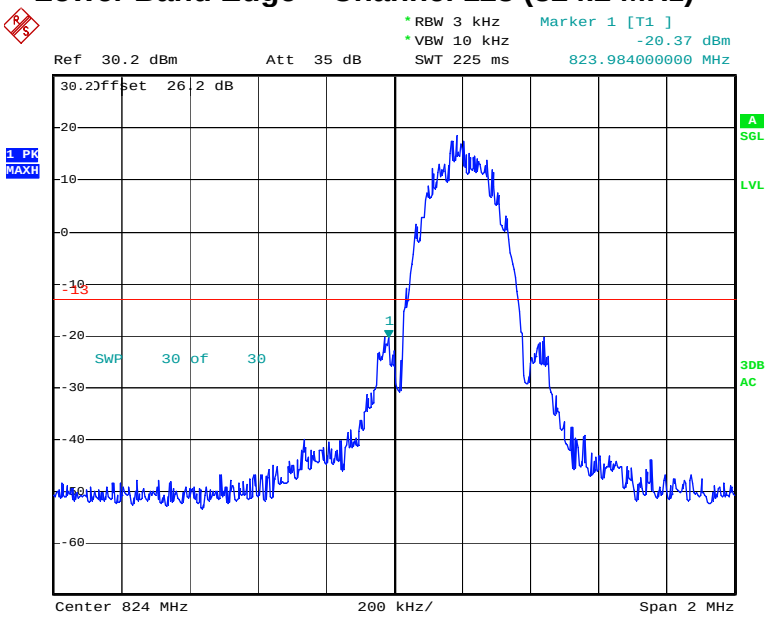
EDGE 850 – Lower Band Edge – Channel 128 (824.2 MHz)



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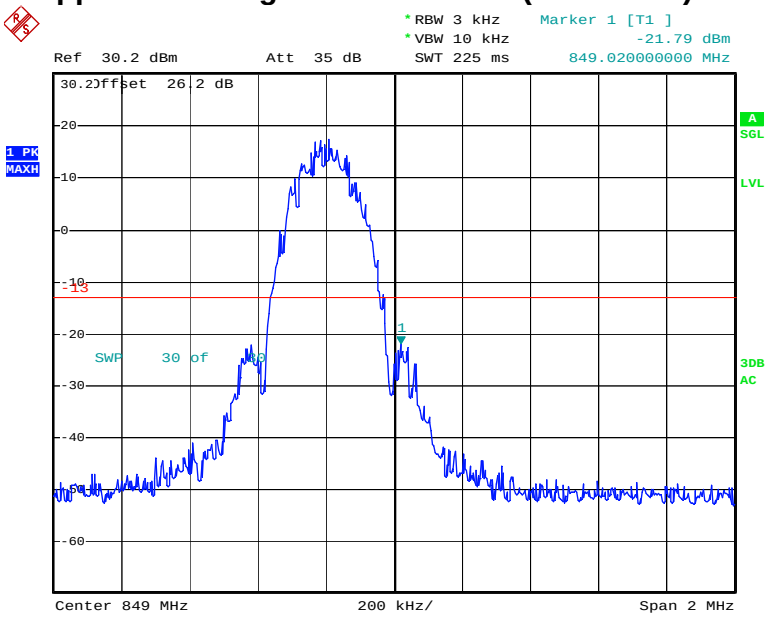
EDGE 850 – Upper Band Edge – Channel 251 (848.8 MHz)



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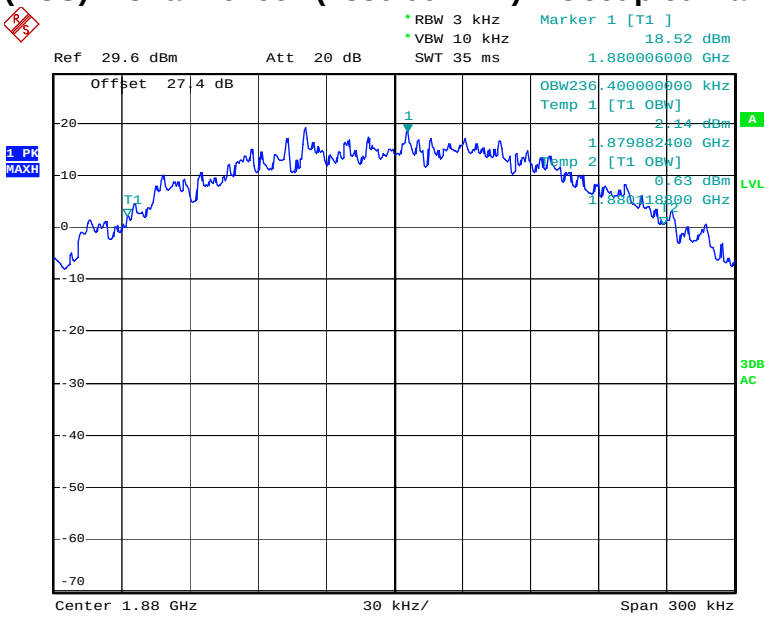
Measurement Results – EDGE 1900

Edge 1900(PCS) – Channel 661 (1880.00 MHz) – Occupied Bandwidth



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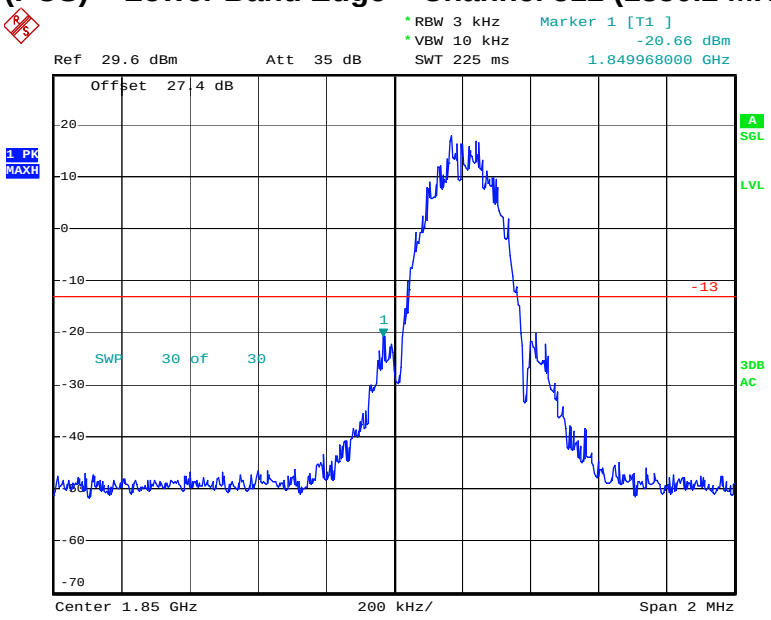
Edge 1900(PCS) – Lower Band Edge – Channel 512 (1850.2 MHz)



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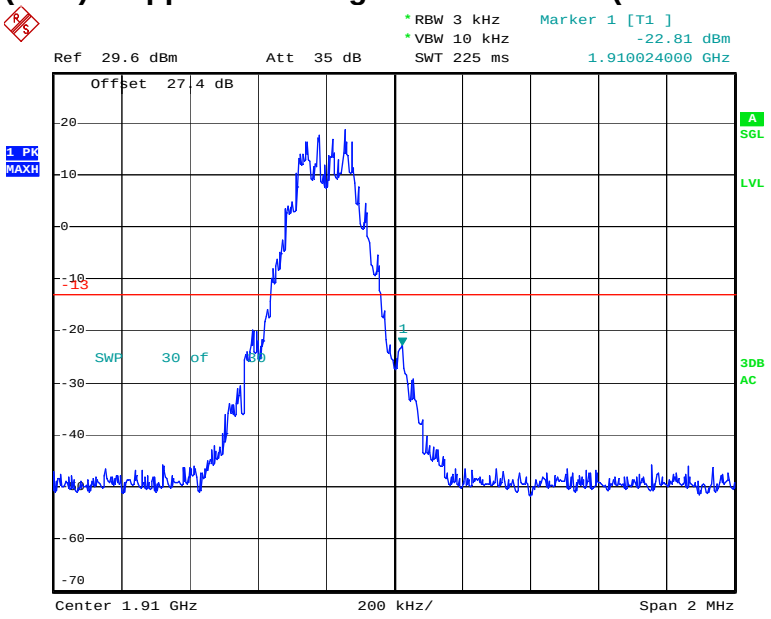
Edge 1900(PCS) – Upper Band Edge – Channel 810 (1909.8 MHz)



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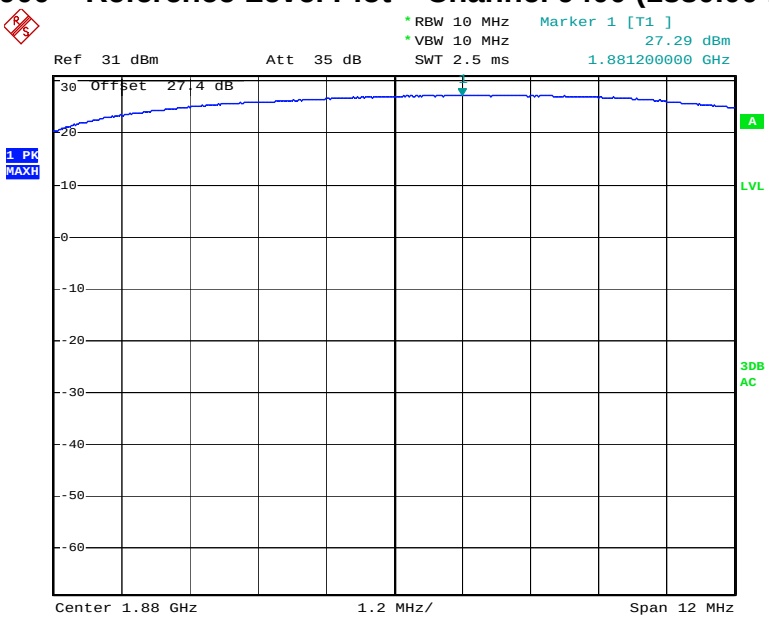
Measurement Results – WCDMA 1900

WCDMA 1900 – Reference Level Plot – Channel 9400 (1880.00 MHz)



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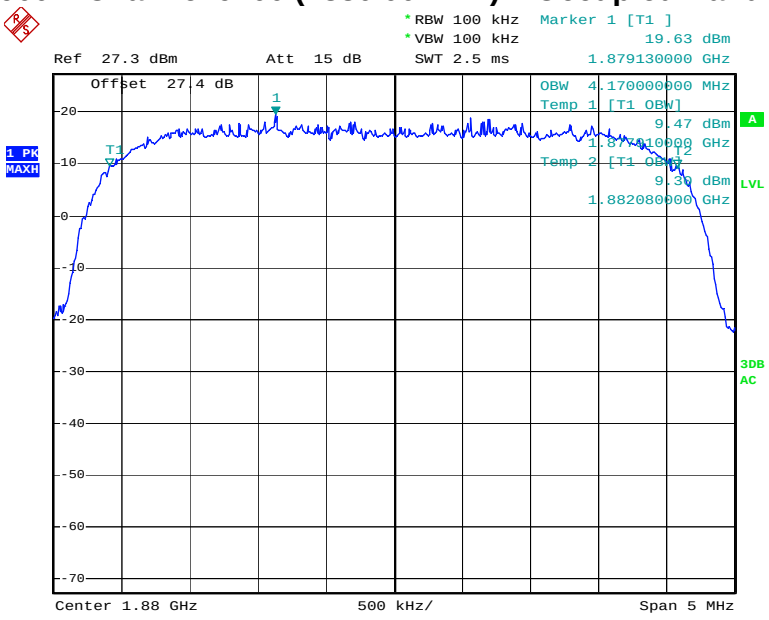
WCDMA 1900 – Channel 9400 (1880.00 MHz) – Occupied Bandwidth



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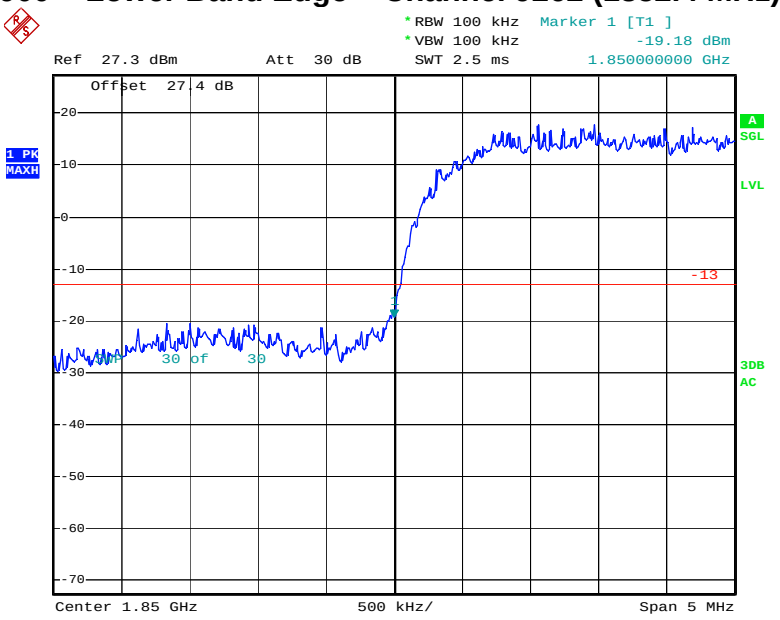
WCDMA 1900 – Lower Band Edge – Channel 9262 (1852.4 MHz)



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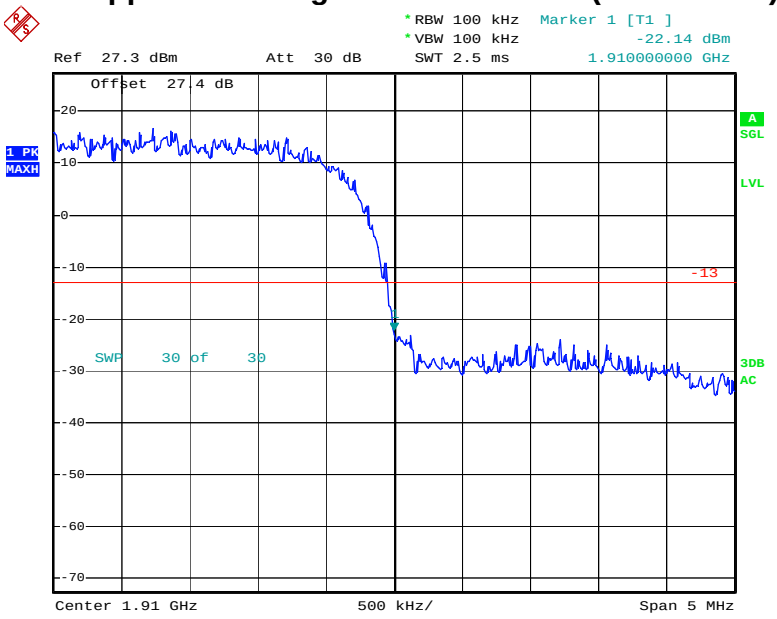
WCDMA 1900 – Upper Band Edge – Channel 9538 (1907.6 MHz)



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SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Measurement Procedure

The RF output port of the Equipment Under Test is directly coupled to the input of the EMC analyzer through a specialized RF connector and a 20dB passive attenuator. For all testing the EUT was powered through the computer's USB.

The spectrum was investigated from the lowest frequency signal generated, without going below 9 kHz, up to at least the tenth harmonic of the fundamental or 40 GHz, whichever is lower.

The spectrum analyzer settings were as follows:

Units	dBm
Divisions	10 dB
Detector	Peak Detector
Resolution Bandwidth	1 MHz
Video Bandwidth (AVG)	Auto
Sweep Time	Auto

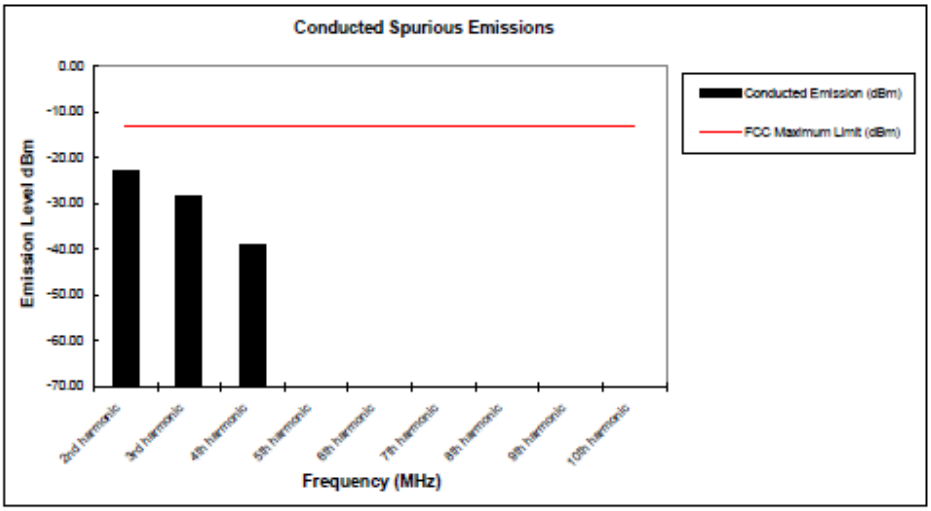
Measurement Results

Attached

Measurement Results – GSM 850

Conducted Spurious and Harmonic Emissions

Harmonic of Fundamental	FCC Maximum Limit (dBm)	Conducted Emission (dBm)
2nd harmonic	-13	-22.95
3rd harmonic	-13	-28.31
4th harmonic	-13	-38.97
5th harmonic	-13	*
6th harmonic	-13	*
7th harmonic	-13	*
8th harmonic	-13	*
9th harmonic	-13	*
10th harmonic	-13	*



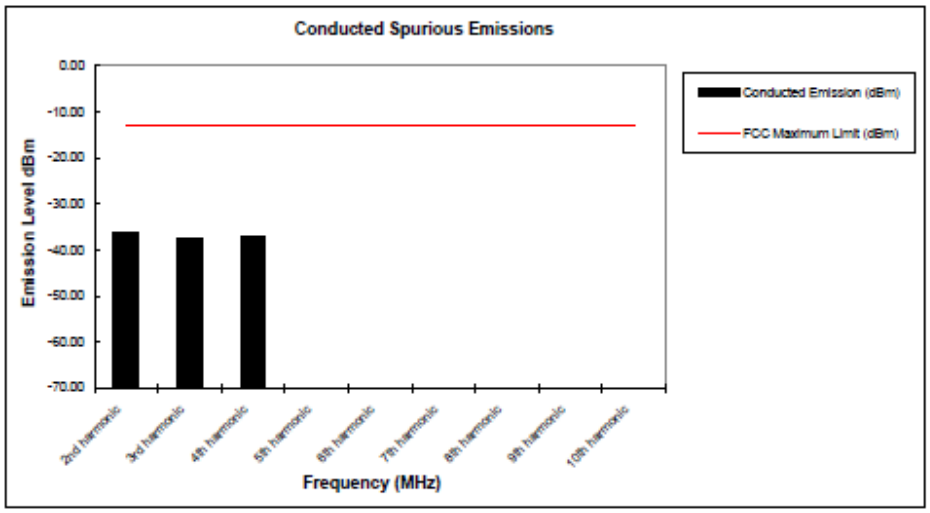
Notes:
1. * Indicates the spurious emission could not be detected due to noise limitations or ambients
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 9 kHz to the tenth harmonic of the fundamental

The margin with respect to the limit is the minimum margin for all modes and bands.

Measurement Results – GSM 1900

Conducted Spurious and Harmonic Emissions

Harmonic of Fundamental	FCC Maximum Limit (dBm)	Conducted Emission (dBm)
2nd harmonic	-13	-36.13
3rd harmonic	-13	-37.25
4th harmonic	-13	-37.24
5th harmonic	-13	*
6th harmonic	-13	*
7th harmonic	-13	*
8th harmonic	-13	*
9th harmonic	-13	*
10th harmonic	-13	*



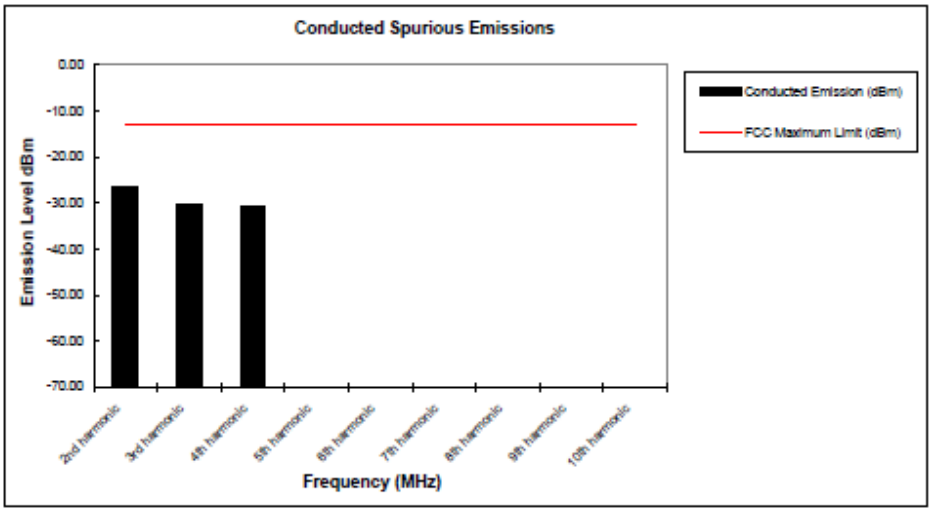
Notes:
1. * Indicates the spurious emission could not be detected due to noise limitations or ambients
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 9 kHz to the tenth harmonic of the fundamental

The margin with respect to the limit is the minimum margin for all modes and bands.

Measurement Results – EDGE 850

Conducted Spurious and Harmonic Emissions

Harmonic of Fundamental	FCC Maximum Limit (dBm)	Conducted Emission (dBm)
2nd harmonic	-13	-26.67
3rd harmonic	-13	-30.38
4th harmonic	-13	-30.79
5th harmonic	-13	*
6th harmonic	-13	*
7th harmonic	-13	*
8th harmonic	-13	*
9th harmonic	-13	*
10th harmonic	-13	*



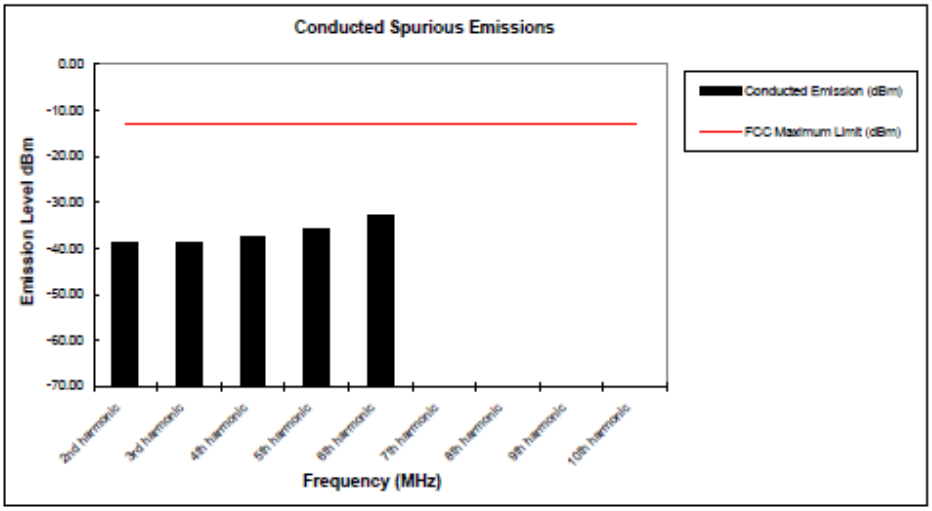
Notes:
1. * Indicates the spurious emission could not be detected due to noise limitations or ambients
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 9 kHz to the tenth harmonic of the fundamental

The margin with respect to the limit is the minimum margin for all modes and bands.

Measurement Results – EDGE 1900

Conducted Spurious and Harmonic Emissions

Harmonic of Fundamental	FCC Maximum Limit (dBm)	Conducted Emission (dBm)
2nd harmonic	-13	-38.81
3rd harmonic	-13	-38.82
4th harmonic	-13	-37.32
5th harmonic	-13	-35.65
6th harmonic	-13	-32.89
7th harmonic	-13	*
8th harmonic	-13	*
9th harmonic	-13	*
10th harmonic	-13	*



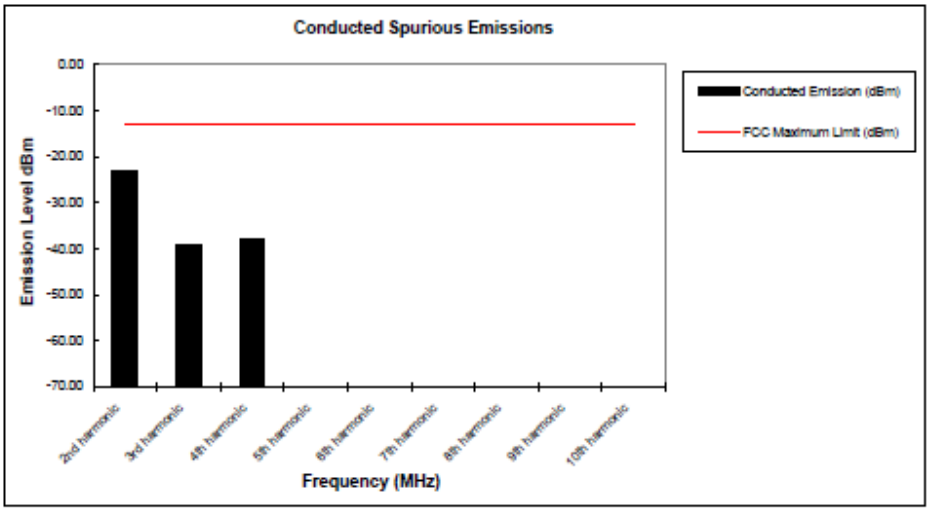
Notes:
1. * Indicates the spurious emission could not be detected due to noise limitations or ambients
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 9 kHz to the tenth harmonic of the fundamental

The margin with respect to the limit is the minimum margin for all modes and bands.

Measurement Results – WCDMA 1900

Conducted Spurious and Harmonic Emissions

Harmonic of Fundamental	FCC Maximum Limit (dBm)	Conducted Emission (dBm)
2nd harmonic	-13	-23.10
3rd harmonic	-13	-38.96
4th harmonic	-13	-38.02
5th harmonic	-13	*
6th harmonic	-13	*
7th harmonic	-13	*
8th harmonic	-13	*
9th harmonic	-13	*
10th harmonic	-13	*



Notes:
1. * Indicates the spurious emission could not be detected due to noise limitations or ambients
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 9 kHz to the tenth harmonic of the fundamental

The margin with respect to the limit is the minimum margin for all modes and bands.

FIELD STRENGTH OF SPURIOUS EMISSIONS

Measurement Procedure

The equipment under test is placed inside the semi-anechoic chamber on a wooden table at the turntable center. For each spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters and the turntable is rotated 360 degrees to obtain a maximum reading on the spectrum analyzer. This is repeated for both horizontal and vertical polarizations of the receive antenna.

The equipment under test is then replaced with a substitution antenna fed by a signal generator. With the signal generator tuned to a particular spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters to obtain a maximum reading at the spectrum analyzer. The output of the signal generator is then adjusted until a reading identical to that obtained with the actual transmitter is achieved.

The power in dBm of each spurious emission is calculated by correcting the signal generator level for cable loss and gain of the substitution antenna referenced to a dipole. A fully charged battery was used for the supply voltage.

The settings of the receiver were as follows:

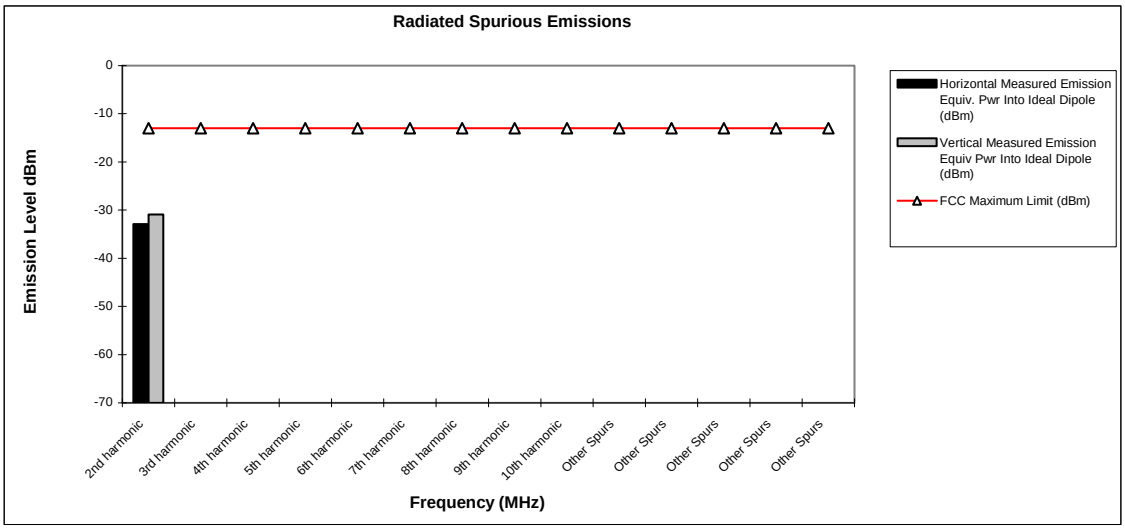
Units	dBm
Divisions	5 dB
Detector	Peak Detector
Resolution Bandwidth	1 MHz
Video Bandwidth (AVG)	Auto
Sweep Time	Auto

Measurement Results
Attached

Measurement Results – GSM 850

Radiated Spurious and Harmonic Emissions

Frequency (MHz)	FCC Maximum Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
2nd harmonic	-13	-32.9	-31.0
3rd harmonic	-13	*	*
4th harmonic	-13	*	*
5th harmonic	-13	*	*
6th harmonic	-13	*	*
7th harmonic	-13	*	*
8th harmonic	-13	*	*
9th harmonic	-13	*	*
10th harmonic	-13	*	*
Other Spurs	-13	*	*
Other Spurs	-13	*	*
Other Spurs	-13	*	*
Other Spurs	-13	*	*
Other Spurs	-13	*	*



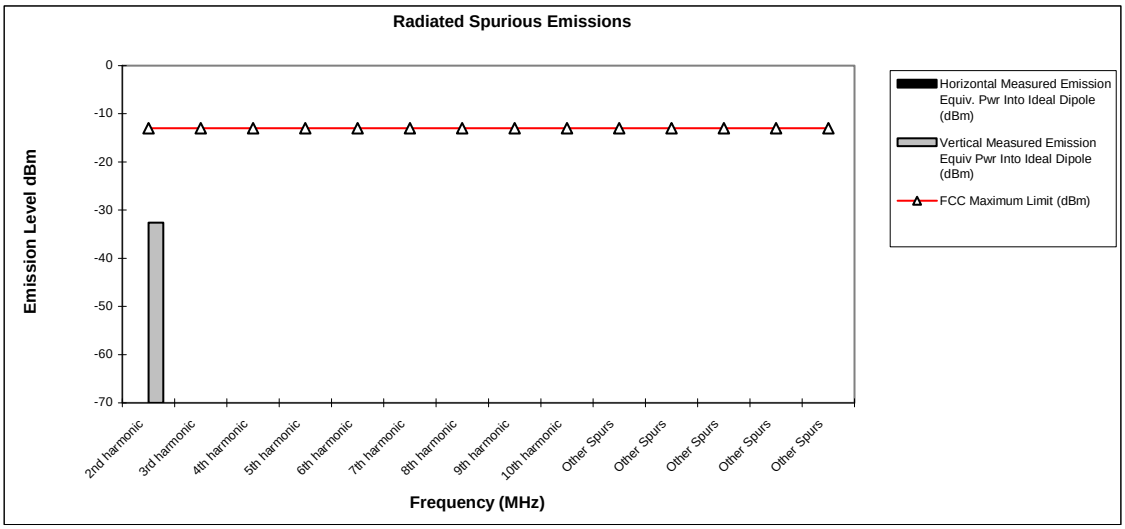
Notes:
1. * Indicates the spurious emission could not be detected due to noise limitations or ambients or the emissions are lower than -33 dBm.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.

The margin with respect to the limit is the minimum margin for all modes and bands.

Measurement Results – EDGE 850

Radiated Spurious and Harmonic Emissions

Frequency (MHz)	FCC Maximum Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
2nd harmonic	-13	*	-32.6
3rd harmonic	-13	*	*
4th harmonic	-13	*	*
5th harmonic	-13	*	*
6th harmonic	-13	*	*
7th harmonic	-13	*	*
8th harmonic	-13	*	*
9th harmonic	-13	*	*
10th harmonic	-13	*	*
Other Spurs	-13	*	*
Other Spurs	-13	*	*
Other Spurs	-13	*	*
Other Spurs	-13	*	*
Other Spurs	-13	*	*



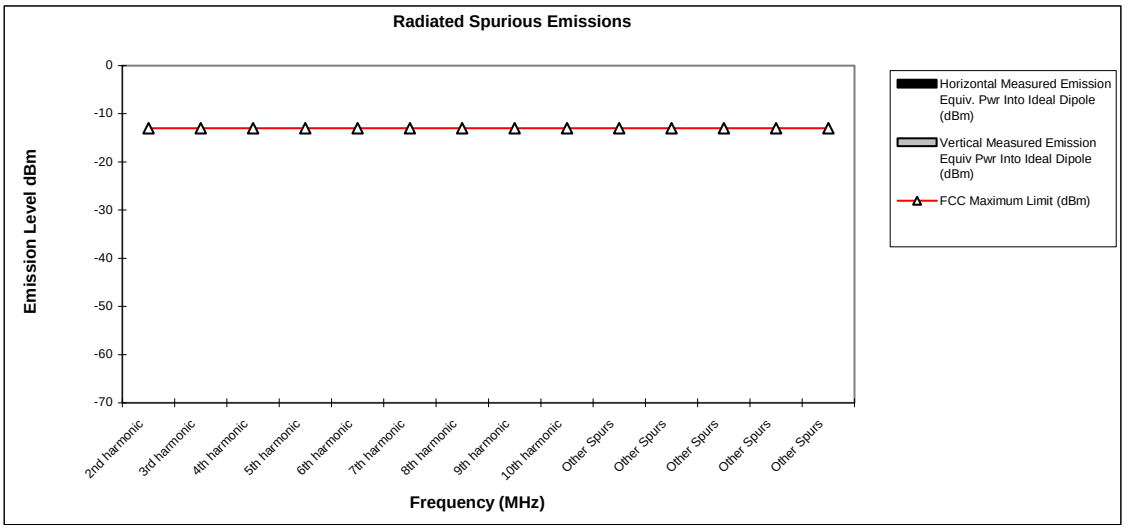
Notes:
1. * Indicates the spurious emission could not be detected due to noise limitations or ambients or the emissions are lower than -33 dBm.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.

The margin with respect to the limit is the minimum margin for all modes and bands.

Measurement Results – GSM 1900 and EDGE 1900

Radiated Spurious and Harmonic Emissions

Frequency (MHz)	FCC Maximum Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
2nd harmonic	-13	*	*
3rd harmonic	-13	*	*
4th harmonic	-13	*	*
5th harmonic	-13	*	*
6th harmonic	-13	*	*
7th harmonic	-13	*	*
8th harmonic	-13	*	*
9th harmonic	-13	*	*
10th harmonic	-13	*	*
Other Spurs	-13	*	*
Other Spurs	-13	*	*
Other Spurs	-13	*	*
Other Spurs	-13	*	*
Other Spurs	-13	*	*



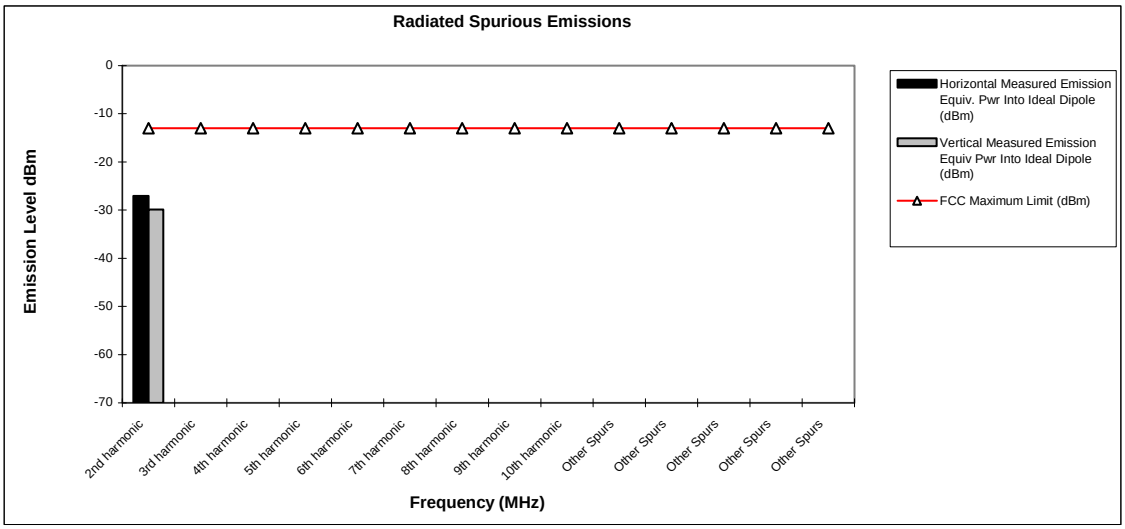
Notes:
1. * Indicates the spurious emission could not be detected due to noise limitations or ambients or the emissions are lower than -33 dBm.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.

The margin with respect to the limit is the minimum margin for all modes and bands.

Measurement Results – WCDMA 1900

Radiated Spurious and Harmonic Emissions

Frequency (MHz)	FCC Maximum Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
2nd harmonic	-13	-27.1	-29.9
3rd harmonic	-13	*	*
4th harmonic	-13	*	*
5th harmonic	-13	*	*
6th harmonic	-13	*	*
7th harmonic	-13	*	*
8th harmonic	-13	*	*
9th harmonic	-13	*	*
10th harmonic	-13	*	*
Other Spurs	-13	*	*
Other Spurs	-13	*	*
Other Spurs	-13	*	*
Other Spurs	-13	*	*
Other Spurs	-13	*	*



Notes:
1. * Indicates the spurious emission could not be detected due to noise limitations or ambients or the emissions are lower than -33 dBm.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.

The margin with respect to the limit is the minimum margin for all modes and bands.

FREQUENCY STABILITY

Measurement Procedure

The equipment under test is placed in an environmental chamber. The antenna port of the Equipment Under Test is directly coupled to the input of the measurement equipment through a specialized RF connector. A power supply is attached as the primary voltage supply.

Frequency measurements are made at the extremes of the temperature range -30º C to +60º C and at intervals of 10º C with the primary supply voltage set to the nominal battery operating voltage. A period of time sufficient to stabilize all components of the equipment is allowed at each frequency measurement. The maximum variation of frequency is measured.

At room temperature, the primary supply voltage is reduced to the battery operating endpoint of the equipment under test. The maximum variation of frequency is measured. A battery eliminator was used for the input supply voltage.

Measurement Results

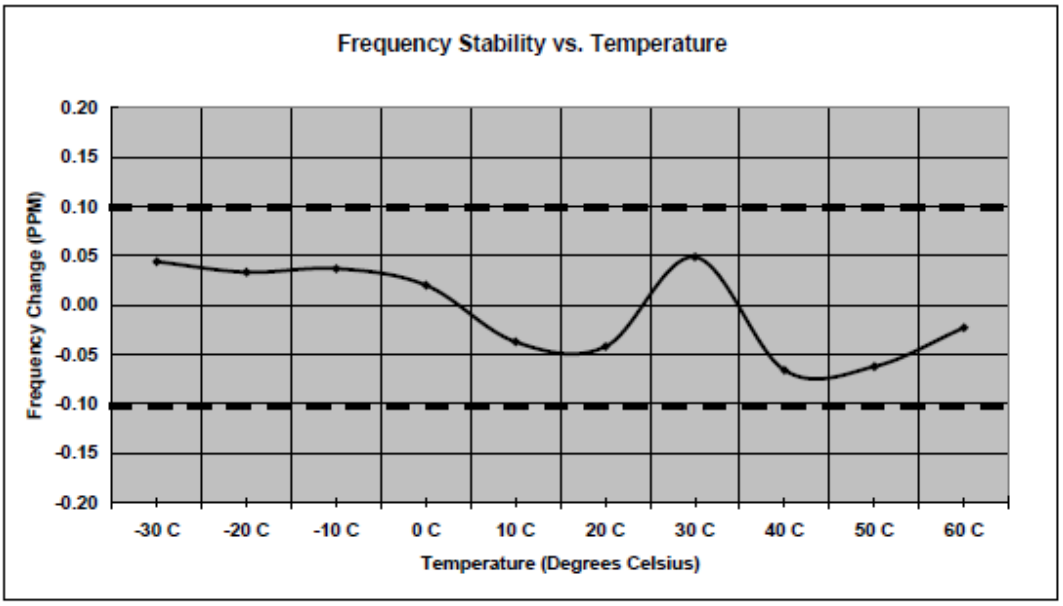
Attached

Measurement Results – GSM 850

Frequency Stability

Mode: GSM 850 Operating Frequency: 836.6 MHz
Channel: 190 Deviation Limit (PPM): 0.1 ppm

Temperature C	Frequency Error HZ	Frequency Error (PPM)	Voltage (%)	Voltage (VDC)
-30 C	37.00	0.044	100%	3.80
-20 C	28.00	0.033	100%	3.80
-10 C	31.00	0.037	100%	3.80
0 C	17.00	0.020	100%	3.80
10 C	-31.00	-0.037	100%	3.80
20 C	-35.00	-0.042	100%	3.80
30 C	41.00	0.049	100%	3.80
40 C	-55.00	-0.066	100%	3.80
50 C	-52.00	-0.062	100%	3.80
60 C	-19.00	-0.023	100%	3.80
20 C	35.00	0.042	Battery Endpoint	3.40

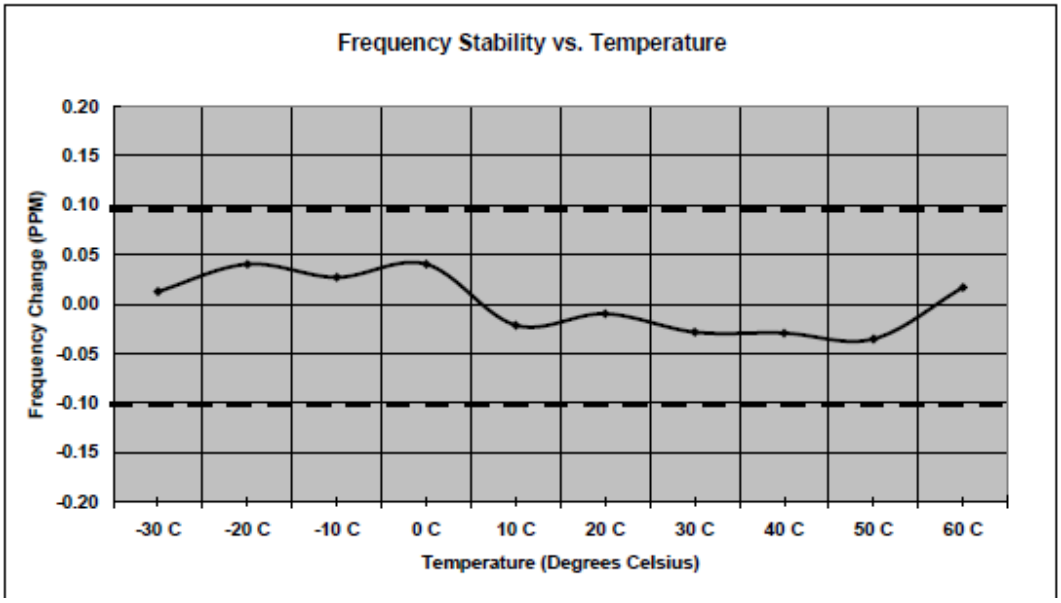


Measurement Results – GSM 1900

Frequency Stability

Mode: GSM 1900 Operating Frequency: 1880.0 MHz
Channel: 661 Deviation Limit (PPM): 0.1ppm

Temperature C	Frequency Error HZ	Frequency Error (PPM)	Voltage (%)	Voltage (VDC)
-30 C	24.00	0.013	100%	3.80
-20 C	76.00	0.040	100%	3.80
-10 C	51.00	0.027	100%	3.80
0 C	76.00	0.040	100%	3.80
10 C	-40.00	-0.021	100%	3.80
20 C	-18.00	-0.010	100%	3.80
30 C	-53.00	-0.028	100%	3.80
40 C	-55.00	-0.029	100%	3.80
50 C	-66.00	-0.035	100%	3.80
60 C	32.00	0.017	100%	3.80
20 C	52.00	0.028	Battery Endpoint	3.40

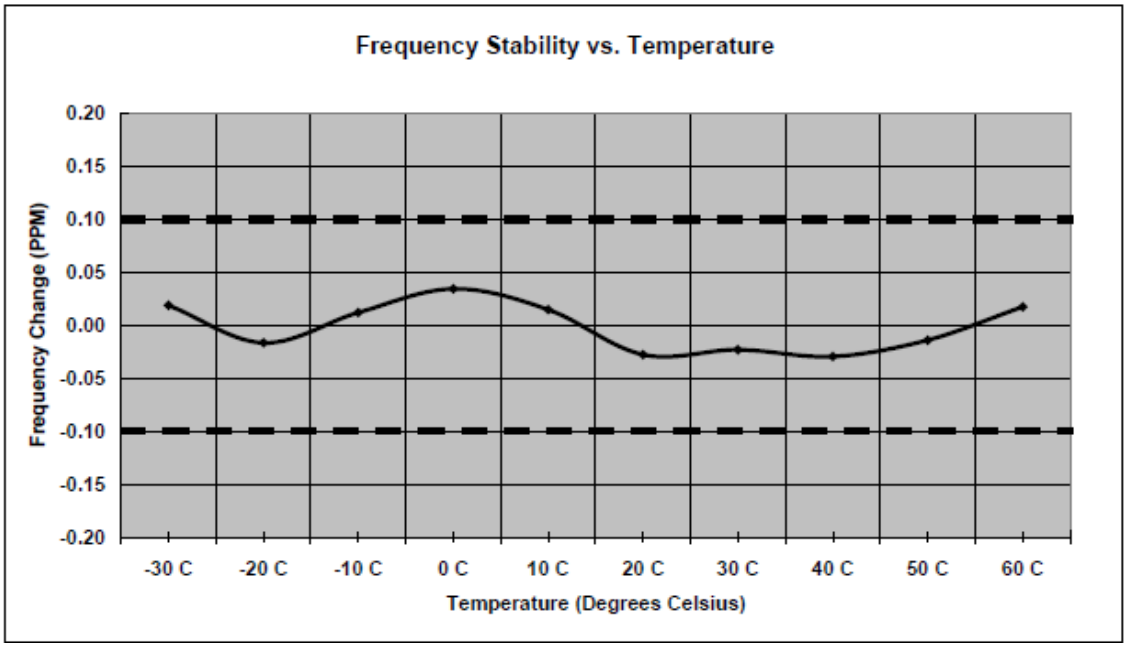


Measurement Results – EDGE 850

Frequency Stability

Mode: EDGE 850 **Operating Frequency:** 836.6
Channel: 190 **Deviation Limit (PPM):** 0.1ppm

Temperature	Frequency Error	Frequency Error	Voltage	Voltage
C	HZ	(PPM)	(%)	(VDC)
-30 C	36.00	0.019	100%	3.80
-20 C	-31.00	-0.016	100%	3.80
-10 C	23.00	0.012	100%	3.80
0 C	65.00	0.035	100%	3.80
10 C	28.00	0.015	100%	3.80
20 C	-52.00	-0.028	100%	3.80
30 C	-43.00	-0.023	100%	3.80
40 C	-55.00	-0.029	100%	3.80
50 C	-26.00	-0.014	100%	3.80
60 C	33.00	0.018	100%	3.80
20 C	50.00	0.027	Battery Endpoint	3.40

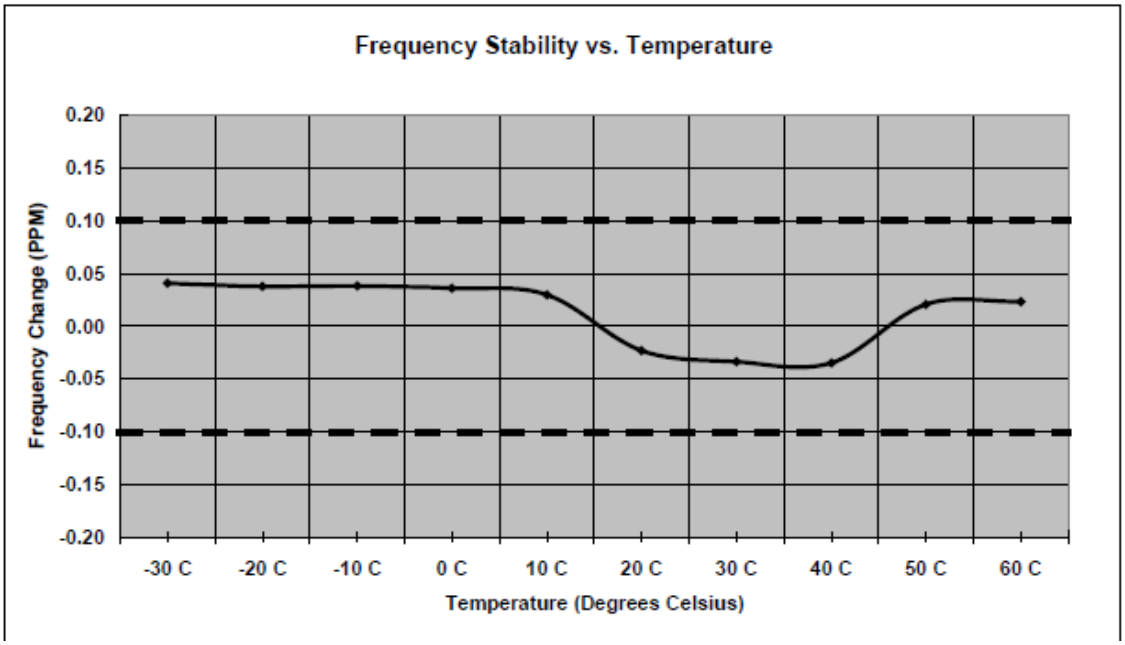


Measurement Results – EDGE 1900

Frequency Stability

Mode: EDGE 1900 **Operating Frequency:** 1880
Channel: 661 **Deviation Limit (PPM):** 0.1ppm

Temperature C	Frequency Error HZ	Frequency Error (PPM)	Voltage (%)	Voltage (VDC)
-30 C	77.00	0.041	100%	3.80
-20 C	71.00	0.038	100%	3.80
-10 C	72.00	0.038	100%	3.80
0 C	68.00	0.036	100%	3.80
10 C	56.00	0.030	100%	3.80
20 C	-43.00	-0.023	100%	3.80
30 C	-63.00	-0.034	100%	3.80
40 C	-65.00	-0.035	100%	3.80
50 C	39.00	0.021	100%	3.80
60 C	44.00	0.023	100%	3.80
20 C	73.00	0.039	Battery Endpoint	3.40

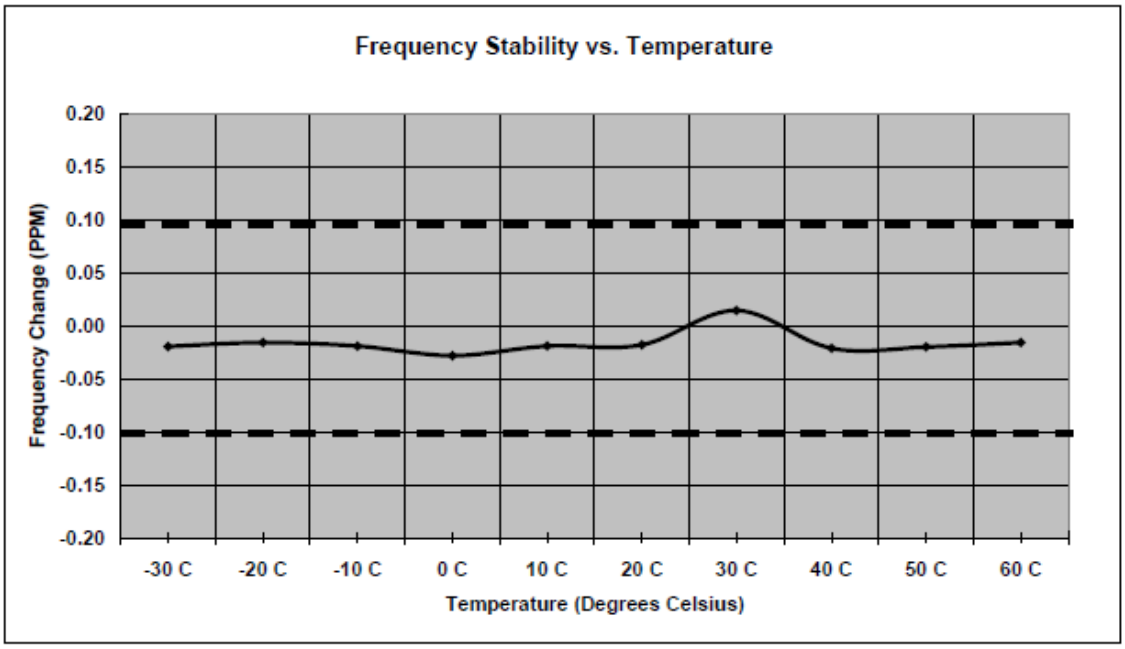


Measurement Results – WCDMA 1900

Frequency Stability

Mode: WCDMA 1900 **Operating Frequency:** 1880.0 MHz
Channel: 600 **Deviation Limit (PPM):** 0.1ppm

Temperature C	Frequency Error HZ	Frequency Error (PPM)	Voltage (%)	Voltage (VDC)
-30 C	-36.00	-0.019	100%	3.80
-20 C	-29.00	-0.015	100%	3.80
-10 C	-35.00	-0.019	100%	3.80
0 C	-52.00	-0.028	100%	3.80
10 C	-35.00	-0.019	100%	3.80
20 C	-33.00	-0.018	100%	3.80
30 C	28.00	0.015	100%	3.80
40 C	-39.00	-0.021	100%	3.80
50 C	-37.00	-0.020	100%	3.80
60 C	-29.00	-0.015	100%	3.80
20 C	-31.00	-0.016	Battery Endpoint	3.40



End of Test Report