



CERTIFICATION TEST REPORT

Report Number. : 11859417-E1V5

Applicant : Verifone, Inc.
1400 West Stanford Ranch Road
Rocklin, CA 95765, USA

FCC ID : B32V240M3G

IC ID : 787C- V240M3G

EUT Description : MOBILE POINT OF SALE TERMINAL
Model : V240m 3G

Test Standard(s) : FCC CFR47 PART 22 SUBPART H
FCC CFR47 PART 24 SUBPART E
INDUSTRY CANADA RSS-132 ISSUE 3
INDUSTRY CANADA RSS-133 ISSUE 6

(RADIATED EMISSIONS)

Date Of Issue:

February 20, 2018

Prepared by:

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NVLAP[®]
TESTING
NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	11/01/17	Initial Issue	--
V2	12/13/17	Added ERP/EIRP section and modified Scope of Testing section.	Frank Ibrahim
V3	01/04/18	Added spots test dadiated data and Re-Use of test data section	Chin Pang
V4	02/13/18	Revised Scope of Testing section Removed Re-use of test data section Revised Test Methodology section Revised maximum output power section	Frank Ibrahim
V5	02/20/18	Revised maximum output power section Revised Scope of Testing section Removed Annex A Added GSM 850/1900 EGPRS and WCDMA B2/B5 Rel 99 Radiated Data	Frank Ibrahim

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Verifone, Inc.
1400 West Stanford Ranch Road Suite 200
Rocklin, CA 95765, USA

EUT DESCRIPTION: Mobile Point of Sale Terminal

MODEL: V240m 3G

SERIAL NUMBER: 313-856-223

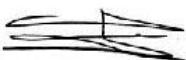
DATE TESTED: October 13, 2017

APPLICABLE STANDARDS		TEST RESULTS
STANDARD		
FCC PART 22H, 24E		PASS
INDUSTRY CANADA RSS-132,133		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:



FRANK IBRAHIM
CONSUMER TECHNOLOGY DIVISION
OPERATION LEADER
UL VERIFICATION SERVICES INC

Prepared By:



GLENN ESCANO
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-E, FCC CFR 47 Part 2, FCC KDB 971168 D01 v02r02, FCC Part 22 and FCC Part 24, and in accordance with RSS 132, RSS 133, and RSS-GEN Issue 4.

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
<input type="checkbox"/> Chamber A(IC: 2324B-1)	<input type="checkbox"/> Chamber D(IC: 22541-1)
<input type="checkbox"/> Chamber B(IC: 2324B-2)	<input type="checkbox"/> Chamber E(IC: 22541-2)
<input checked="" type="checkbox"/> Chamber C(IC: 2324B-3)	<input type="checkbox"/> Chamber F(IC: 22541-3)
	<input type="checkbox"/> Chamber G(IC: 22541-4)
	<input type="checkbox"/> Chamber H(IC: 22541-5)

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. Chambers A through C are covered under Industry Canada company address code 2324B with site numbers 2324B-1 through 2324B-3, respectively. Chambers D through H are covered under Industry Canada company address code 22541 with site numbers 22541-1 through 22541-5, respectively.

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:

EIRP = PSA reading with EUT worst orientation (dBm) + Path loss (dB) – cable loss (between the SG and substitution antenna) + Substitution Antenna Factor (dBi)

ERP = PSA reading with EUT worst orientation (dBm) + Path loss (dB) – cable loss (between the SG and substitution antenna)

(Path loss = Signal generator output – 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
Occupied Channel Bandwidth	$\pm 1.1\%$
RF output power, conducted	$\pm 0.35\text{ dB}$
Power Spectral Density, conducted	$\pm 0.39\text{ dB}$
Unwanted Emissions, conducted	$\pm 2.9\text{ dB}$
All emissions, radiated	$\pm 5.36\text{ dB}$
Temperature	$\pm 0.9\text{ }^{\circ}\text{C}$
Humidity	$\pm 2.26\% \text{ RH}$
Supply Voltages	$\pm 0.45\%$
Time	$\pm 0.2\%$

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Mobile Point of Sale Terminal which supports the following technologies:

- 850/1900 GSM,
- WCDMA FDD Band 2, Band 5
- NFC.

5.2. MAXIMUM OUTPUT POWER

Note: Output power above is taken from the original filing and is being used to show that the power still complies with FCC/ISED limits after accounting for the new antenna gain.

5.2.1. MAXIMUM OUTPUT POWER (GSM/EGPRS)

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

FCC Part 22/24						
Band	Frequency Range(MHz)	Modulation	Conducted (Average)		ERP/EIRP (Average)	
			AVG(dBm)	AVG(mW)	dBm	mW
850	824~849	GPRS	31.65	1462.18	27.50	562.34
	824~849	EGPRS	26.00	398.11	21.85	153.11
1900	1850~1910	GPRS	28.78	755.09	30.28	1066.60
	1850~1910	EGPRS	24.80	302.00	26.30	426.58

RSS 132/133						
Band	Frequency Range(MHz)	Modulation	Conducted (Average)		EIRP (Average)	
			AVG(dBm)	AVG(mW)	dBm	mW
850	824~849	GPRS	31.65	1462.18	29.65	922.57
	824~849	EGPRS	26.00	398.11	24.00	251.19
1900	1850~1910	GPRS	28.78	755.09	30.28	1066.60
	1850~1910	EGPRS	24.80	302.00	26.30	426.58

5.2.2. MAXIMUM OUTPUT POWER (WCDMA)

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

FCC Part 24 & RSS 133						
Band	Frequency Range(MHz)	Modulation	Conducted (Average)		EIRP (Average)	
			AVG(dBm)	AVG(mW)	dBm	mW
Band 2	1850~1910	REL99	22.30	169.8	23.80	239.9
	1850~1910	HSDPA	22.72	187.1	24.22	264.2

FCC Part 22						
Band	Frequency Range(MHz)	Modulation	Conducted (Average)		ERP (Average)	
			AVG(dBm)	AVG(mW)	dBm	mW
Band 5	824~849	REL99	22.82	191.4	18.67	73.6
	824~849	HSDPA	21.46	140.0	17.31	53.8

RSS 132						
Band	Frequency Range(MHz)	Modulation	Conducted (Average)		EIRP (Average)	
			AVG(dBm)	AVG(mW)	dBm	mW
Band 5	824~849	REL99	22.82	191.4	20.82	120.8
	824~849	HSDPA	21.46	140.0	19.46	88.3

5.3. SCOPE OF TESTING

Model V240m 3G has the same WWAN radio module as model V240m Plus 3GBW that was tested and covered under report 11631998-E6V5 (FCC ID: B32V240MPLUS, IC: 787C- V240MPLUS).

For antenna port data (except ERP/EIRP) refer to report 11631998-E6V5. This report covers only radiated emissions for the following modes/bands:

- GSM GPRS 850 MHz
- GSM 1900 MHz ALLOCATED
- WCDMA HSDPA Band 2
- WCDMA HSDPA Band 5

ERP/EIRP is provided in this report.

Full radiated emissions testing was performed for V240m 3G model as covered by this report.

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna with a maximum peak gain as follow:

Frequency (MHz)	Peak Gain (dBi)
GSM850, 824~849MHz	-2.0
GSM1900, 1850~1910MHz	1.5
WCDMA Band 2, 1850~1910MHz	1.5
WCDMA Band 5, 824~849	-2.0

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Verifone	SC1402	1708200053701	NA

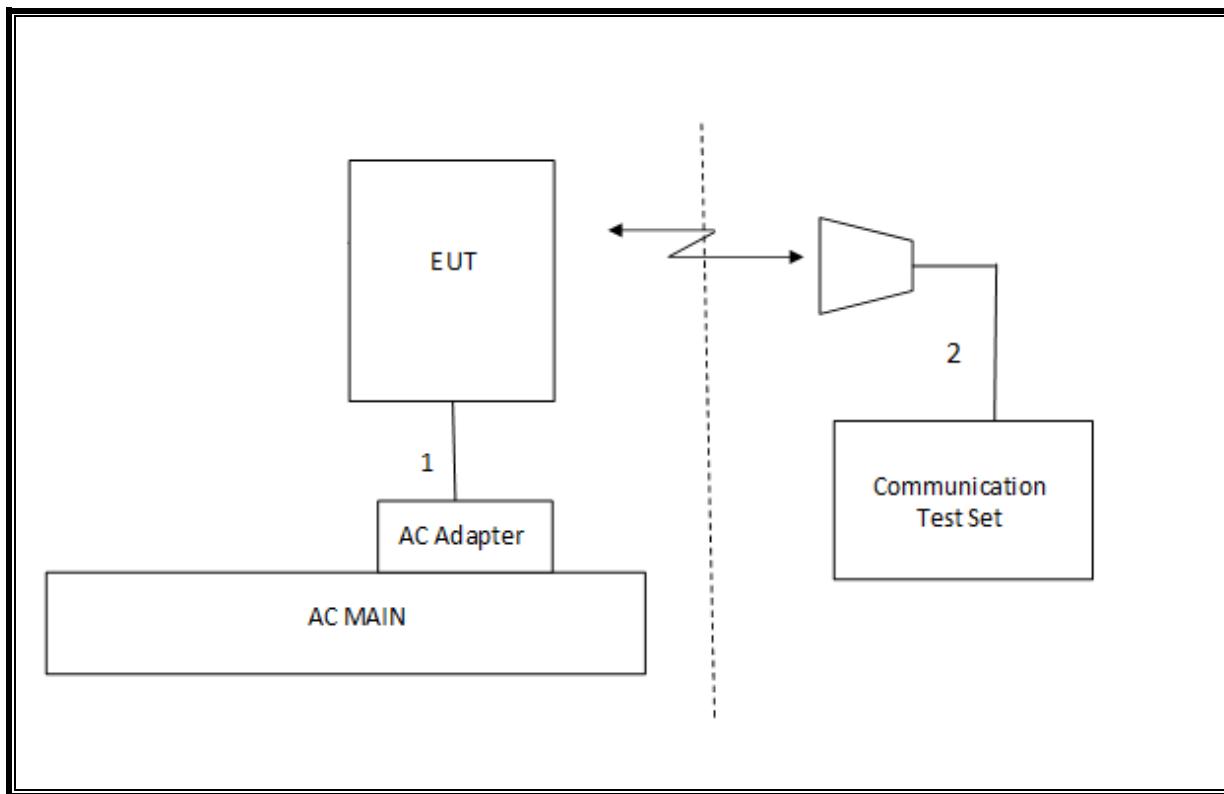
I/O CABLES (RADIATED SETUP)

I/O Cable List						
Cable No	Port	# of Identical ports	Connector Type	Serial Type	Cable Length (m)	Remarks
1	DC	1	Round	Un-shielded	1.75m	
2	RF In/out	1	Communication Test Set	Un-shielded	2m	

TEST SETUP

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

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	T Number	Cal Date	Cal Due
Amplifier, 1 to 18 GHz	Miteq	AFS43-00101800-25-S-42	493	02/15/17	02/15/18
Amplifier, 1 to 8 GHz	Miteq	AMF-4D-01000800-30-29P	1156	02/15/17	02/15/18
Amplifier, 10KHz to 1GHz, 32dB	Keysight	8447D	10	02/15/17	02/15/18
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	408	11/10/16	11/10/17
Horn Antenna	ETS-Lindgren	3117	T712	01/30/17	01/30/18
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	907	01/23/17	01/23/18
Highpass Filter, 2.7 GHz	Micro-Circuits	H2G518G6	T772	07/05/16	07/05/18
Highpass Filter, 1 GHz	Micro-Tronics	HPM18129	T889	02/21/17	02/21/18
Highpass Filter, 4GHz	Micro-Tronics	HPM13351	T1241	07/19/17	07/19/18
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	T956	None	None
PXA, Signal Analyzer	Agilent Technologies	N9030A	T1931	06/06/17	06/06/18
DC power supply, 8 V @ 3 A or 15 V @ 2 A	Agilent / HP	E3610A	None	CNR	None
Antenna, Tuned Dipole 400~1000 MHz	ETS	3121C DB4	T273	06/08/17	06/08/18
Directional Coupler	Mini-Circuits	ZUDC10-183+	T1136	06/18/17	06/18/18

Test Equipment List			
Description	Manufacturer	Model	UL Test software
Radiated Software	UL	UL EMC	Ver 1.2.4, Mar 13, 2017
Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015
CLT Software	UL	UL RF	Ver 1.7, Feb 2, 2015
Antenna Port Software	UL	UL RF	Ver 7.0.1, Feb 27, 2017

7. RADIATED TEST RESULTS

RULE PART(S)

FCC: §2.1053, §22.917
IC: RSS132§5.5; RSS133§6.5

FCC LIMIT

§22.917 (e) and §24.238 (a):

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 $43 + 10 \log_{10}(P)$ dB.

RSS132§5.5

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10}P$ (watts).

After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10}P$ (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

RSS133§6.5

Equipment shall comply with the limits in (i) and (ii) below.

(i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10}P$ (watts).

(ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10}P$ (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

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.

GSM

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement									
Company:	Verifone								
Project #:	11859417								
Date:	10/13/2017								
Test Engineer:	37290								
Configuration:	EUT + Charger								
Location:	Chamber C								
Mode:	GPRS 850 MHz Harmonics								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2									
1648.40	-19.0	V	3.0	37.0	1.0	-55.0	-13.0	-42.0	
2472.60	-17.4	V	3.0	36.4	1.0	-52.8	-13.0	-39.8	
3296.80	-19.0	V	3.0	36.2	1.0	-54.2	-13.0	-41.2	
1648.40	-19.2	H	3.0	37.0	1.0	-55.3	-13.0	-42.3	
2472.60	-18.6	H	3.0	36.4	1.0	-54.1	-13.0	-41.1	
3296.80	-19.0	H	3.0	36.2	1.0	-54.1	-13.0	-41.1	
Mid Ch, 836.6									
1673.20	-17.8	V	3.0	37.0	1.0	-53.8	-13.0	-40.8	
2509.80	-19.1	V	3.0	36.4	1.0	-54.5	-13.0	-41.5	
3346.40	-17.9	V	3.0	36.1	1.0	-53.0	-13.0	-40.0	
1673.20	-16.2	H	3.0	37.0	1.0	-52.2	-13.0	-39.2	
2509.80	-20.2	H	3.0	36.4	1.0	-55.7	-13.0	-42.7	
3346.40	-18.9	H	3.0	36.1	1.0	-54.0	-13.0	-41.0	
High Ch, 848.8									
1697.60	-17.1	V	3.0	37.0	1.0	-53.1	-13.0	-40.1	
2546.40	-13.7	V	3.0	36.4	1.0	-49.1	-13.0	-36.1	
3395.20	-19.2	V	3.0	36.1	1.0	-54.3	-13.0	-41.3	
1697.60	-14.0	H	3.0	37.0	1.0	-49.9	-13.0	-36.9	
2546.40	-15.0	H	3.0	36.4	1.0	-50.4	-13.0	-37.4	
3395.20	-19.0	H	3.0	36.1	1.0	-54.1	-13.0	-41.1	

GSM850 GPRS

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement									
Company:	Verifone								
Project #:	11859417								
Date:	10/13/2017								
Test Engineer:	37290								
Configuration:	EUT + Charger								
Location:	Chamber C								
Mode:	GPRS 1900 MHz Harmonics								
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2									
3700.40	-17.1	V	3.0	35.9	1.0	-51.9	-13.0	-38.9	
5550.60	-14.6	V	3.0	35.5	1.0	-49.1	-13.0	-36.1	
7400.80	-12.5	V	3.0	35.7	1.0	-47.2	-13.0	-34.2	
3700.40	-17.0	H	3.0	35.9	1.0	-51.8	-13.0	-38.8	
5550.60	-14.2	H	3.0	35.5	1.0	-48.7	-13.0	-35.7	
7400.80	-11.2	H	3.0	35.7	1.0	-45.9	-13.0	-32.9	
Mid Ch, 1880									
3760.00	-20.3	V	3.0	35.8	1.0	-55.2	-13.0	-42.2	
5640.00	-12.9	V	3.0	35.5	1.0	-47.4	-13.0	-34.4	
7520.00	-12.6	V	3.0	35.7	1.0	-47.4	-13.0	-34.4	
3760.00	-17.8	H	3.0	35.8	1.0	-52.6	-13.0	-39.6	
5640.00	-12.9	H	3.0	35.5	1.0	-47.4	-13.0	-34.4	
7520.00	-11.7	H	3.0	35.7	1.0	-46.4	-13.0	-33.4	
High Ch, 1909.8									
3819.60	-16.9	V	3.0	35.8	1.0	-51.7	-13.0	-38.7	
5729.40	-14.0	V	3.0	35.5	1.0	-48.5	-13.0	-35.5	
7639.20	-12.2	V	3.0	35.8	1.0	-47.0	-13.0	-34.0	
3819.60	-16.1	H	3.0	35.8	1.0	-50.9	-13.0	-37.9	
5729.40	-12.6	H	3.0	35.5	1.0	-47.1	-13.0	-34.1	
7639.20	-10.4	H	3.0	35.8	1.0	-45.2	-13.0	-32.2	

GSM 1900 GPRS

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement									
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2									
1648.40	-23.8	V	3.0	37.0	1.0	-59.8	-13.0	-46.8	
2472.60	-20.8	V	3.0	36.4	1.0	-56.3	-13.0	-43.3	
3296.80	-18.2	V	3.0	36.2	1.0	-53.4	-13.0	-40.4	
1648.40	-22.7	H	3.0	37.0	1.0	-58.7	-13.0	-45.7	
2472.60	-21.8	H	3.0	36.4	1.0	-57.2	-13.0	-44.2	
3296.80	-19.8	H	3.0	36.2	1.0	-55.0	-13.0	-42.0	
Mid Ch, 836.6									
1673.20	-18.2	V	3.0	37.0	1.0	-54.2	-13.0	-41.2	
2509.80	-20.6	V	3.0	36.4	1.0	-56.0	-13.0	-43.0	
3346.40	-17.1	V	3.0	36.1	1.0	-52.2	-13.0	-39.2	
1673.20	-23.7	H	3.0	37.0	1.0	-59.7	-13.0	-46.7	
2509.80	-22.7	H	3.0	36.4	1.0	-58.1	-13.0	-45.1	
3346.40	-19.7	H	3.0	36.1	1.0	-54.8	-13.0	-41.8	
High Ch, 848.8									
1697.60	-21.3	V	3.0	37.0	1.0	-57.3	-13.0	-44.3	
2546.40	-20.6	V	3.0	36.4	1.0	-56.0	-13.0	-43.0	
3395.20	-18.9	V	3.0	36.1	1.0	-54.0	-13.0	-41.0	
1697.60	-17.3	H	3.0	37.0	1.0	-53.2	-13.0	-40.2	
2546.40	-21.6	H	3.0	36.4	1.0	-57.0	-13.0	-44.0	
3395.20	-19.4	H	3.0	36.1	1.0	-54.5	-13.0	-41.5	

GSM850 EGPRS

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement									
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2									
3700.40	-17.7	V	3.0	35.9	1.0	-52.6	-13.0	-39.6	
5550.60	-12.3	V	3.0	35.5	1.0	-46.8	-13.0	-33.8	
7400.80	-12.6	V	3.0	35.7	1.0	-47.3	-13.0	-34.3	
3700.40	-17.2	H	3.0	35.9	1.0	-52.0	-13.0	-39.0	
5550.60	-12.4	H	3.0	35.5	1.0	-46.9	-13.0	-33.9	
7400.80	-11.4	H	3.0	35.7	1.0	-46.1	-13.0	-33.1	
Mid Ch, 1880									
3760.00	-17.3	V	3.0	35.8	1.0	-52.1	-13.0	-39.1	
5640.00	-14.4	V	3.0	35.5	1.0	-48.9	-13.0	-35.9	
7520.00	-13.9	V	3.0	35.7	1.0	-48.6	-13.0	-35.6	
3760.00	-16.9	H	3.0	35.8	1.0	-51.7	-13.0	-38.7	
5640.00	-13.4	H	3.0	35.5	1.0	-47.8	-13.0	-34.8	
7520.00	-11.9	H	3.0	35.7	1.0	-46.6	-13.0	-33.6	
High Ch, 1909.8									
3819.60	-17.1	V	3.0	35.8	1.0	-51.9	-13.0	-38.9	
5729.40	-13.3	V	3.0	35.5	1.0	-47.8	-13.0	-34.8	
7639.20	-12.7	V	3.0	35.8	1.0	-47.4	-13.0	-34.4	
3819.60	-17.8	H	3.0	35.8	1.0	-52.6	-13.0	-39.6	
5729.40	-13.2	H	3.0	35.5	1.0	-47.7	-13.0	-34.7	
7639.20	-11.8	H	3.0	35.8	1.0	-46.5	-13.0	-33.5	

GSM 1900 EGPRS

WCDMA

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement									
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4									
3704.80	-12.6	V	3.0	35.9	1.0	-47.4	-13.0	-34.4	
5557.20	-13.8	V	3.0	35.5	1.0	-48.3	-13.0	-35.3	
7409.60	-12.1	V	3.0	35.7	1.0	-46.9	-13.0	-33.9	
3704.80	-12.6	H	3.0	35.9	1.0	-47.5	-13.0	-34.5	
5557.20	-12.8	H	3.0	35.5	1.0	-47.3	-13.0	-34.3	
7409.60	-11.2	H	3.0	35.7	1.0	-45.9	-13.0	-32.9	
Mid Ch, 1880									
3760.00	-15.6	V	3.0	35.8	1.0	-50.4	-13.0	-37.4	
5640.00	-13.3	V	3.0	35.5	1.0	-47.8	-13.0	-34.8	
7520.00	-13.1	V	3.0	35.7	1.0	-47.8	-13.0	-34.8	
3760.00	-15.8	H	3.0	35.8	1.0	-50.6	-13.0	-37.6	
5640.00	-12.5	H	3.0	35.5	1.0	-47.0	-13.0	-34.0	
7520.00	-11.0	H	3.0	35.7	1.0	-45.8	-13.0	-32.8	
High Ch, 1907.6									
3815.20	-7.0	V	3.0	35.8	1.0	-41.8	-13.0	-28.8	
5722.80	-13.8	V	3.0	35.5	1.0	-48.3	-13.0	-35.3	
7630.40	-12.4	V	3.0	35.8	1.0	-47.2	-13.0	-34.2	
3815.20	-11.3	H	3.0	35.8	1.0	-46.1	-13.0	-33.1	
5722.80	-13.4	H	3.0	35.5	1.0	-47.9	-13.0	-34.9	
7630.40	-12.0	H	3.0	35.8	1.0	-46.8	-13.0	-33.8	

B2 HSDPA

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement									
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.4									
1652.80	-16.3	V	3.0	37.0	1.0	-52.3	-13.0	-39.3	
2479.20	-19.8	V	3.0	36.4	1.0	-55.2	-13.0	-42.2	
3305.60	-19.1	V	3.0	36.1	1.0	-54.3	-13.0	-41.3	
1652.80	-14.9	H	3.0	37.0	1.0	-51.0	-13.0	-38.0	
2479.20	-21.5	H	3.0	36.4	1.0	-56.9	-13.0	-43.9	
3305.60	-19.0	H	3.0	36.1	1.0	-54.2	-13.0	-41.2	
Mid Ch, 836.6									
1673.20	-11.9	V	3.0	37.0	1.0	-47.9	-13.0	-34.9	
2509.80	-20.6	V	3.0	36.4	1.0	-56.1	-13.0	-43.1	
3346.40	-18.9	V	3.0	36.1	1.0	-54.0	-13.0	-41.0	
1673.20	-11.7	H	3.0	37.0	1.0	-47.7	-13.0	-34.7	
2509.80	-20.7	H	3.0	36.4	1.0	-56.2	-13.0	-43.2	
3346.40	-17.6	H	3.0	36.1	1.0	-52.7	-13.0	-39.7	
High Ch, 846.6									
1693.20	-17.6	V	3.0	37.0	1.0	-53.6	-13.0	-40.6	
2539.80	-20.5	V	3.0	36.4	1.0	-55.9	-13.0	-42.9	
3386.40	-18.8	V	3.0	36.1	1.0	-53.9	-13.0	-40.9	
1693.20	-13.3	H	3.0	37.0	1.0	-49.3	-13.0	-36.3	
2539.80	-21.9	H	3.0	36.4	1.0	-57.3	-13.0	-44.3	
3386.40	-19.3	H	3.0	36.1	1.0	-54.4	-13.0	-41.4	

B5 HSDPA

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement									
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4									
3704.80	-11.3	V	3.0	35.9	1.0	-46.2	-13.0	-33.2	
5557.20	-15.3	V	3.0	35.5	1.0	-49.7	-13.0	-36.7	
7409.60	-11.8	V	3.0	35.7	1.0	-46.6	-13.0	-33.6	
3704.80	-13.0	H	3.0	35.9	1.0	-47.9	-13.0	-34.9	
5557.20	-14.7	H	3.0	35.5	1.0	-49.1	-13.0	-36.1	
7409.60	-11.3	H	3.0	35.7	1.0	-46.0	-13.0	-33.0	
Mid Ch, 1880									
3760.00	-17.6	V	3.0	35.8	1.0	-52.4	-13.0	-39.4	
5640.00	-13.2	V	3.0	35.5	1.0	-47.7	-13.0	-34.7	
7520.00	-11.6	V	3.0	35.7	1.0	-46.3	-13.0	-33.3	
3760.00	-15.9	H	3.0	35.8	1.0	-50.7	-13.0	-37.7	
5640.00	-12.3	H	3.0	35.5	1.0	-46.8	-13.0	-33.8	
7520.00	-11.0	H	3.0	35.7	1.0	-45.8	-13.0	-32.8	
High Ch, 1907.6									
3815.20	-13.4	V	3.0	35.8	1.0	-48.2	-13.0	-35.2	
5722.80	-14.1	V	3.0	35.5	1.0	-48.6	-13.0	-35.6	
7630.40	-13.1	V	3.0	35.8	1.0	-47.9	-13.0	-34.9	
3815.20	-13.1	H	3.0	35.8	1.0	-47.8	-13.0	-34.8	
5722.80	-13.7	H	3.0	35.5	1.0	-48.2	-13.0	-35.2	
7630.40	-12.0	H	3.0	35.8	1.0	-46.8	-13.0	-33.8	

B2 REL99

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement									
f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.4									
1652.80	-15.5	V	3.0	37.0	1.0	-51.5	-13.0	-38.5	
2479.20	-20.7	V	3.0	36.4	1.0	-56.1	-13.0	-43.1	
3305.60	-19.0	V	3.0	36.1	1.0	-54.2	-13.0	-41.2	
1652.80	-16.6	H	3.0	37.0	1.0	-52.6	-13.0	-38.6	
2479.20	-21.5	H	3.0	36.4	1.0	-56.9	-13.0	-43.9	
3305.60	-18.9	H	3.0	36.1	1.0	-54.0	-13.0	-41.0	
Mid Ch, 836.6									
1673.20	-12.3	V	3.0	37.0	1.0	-48.3	-13.0	-35.3	
2509.80	-19.6	V	3.0	36.4	1.0	-55.0	-13.0	-42.0	
3346.40	-19.3	V	3.0	36.1	1.0	-54.5	-13.0	-41.5	
1673.20	-12.9	H	3.0	37.0	1.0	-48.9	-13.0	-35.9	
2509.80	-21.3	H	3.0	36.4	1.0	-56.7	-13.0	-43.7	
3346.40	-19.1	H	3.0	36.1	1.0	-54.2	-13.0	-41.2	
High Ch, 846.6									
1693.20	-17.3	V	3.0	37.0	1.0	-53.3	-13.0	-40.3	
2539.80	-20.6	V	3.0	36.4	1.0	-56.0	-13.0	-43.0	
3386.40	-18.8	V	3.0	36.1	1.0	-53.9	-13.0	-40.9	
1693.20	-13.3	H	3.0	37.0	1.0	-49.3	-13.0	-36.3	
2539.80	-21.2	H	3.0	36.4	1.0	-56.6	-13.0	-43.6	
3386.40	-19.0	H	3.0	36.1	1.0	-54.1	-13.0	-41.1	

B5 REL99