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Report On

FCC Testing of the
Sharp 205SH AXGP & Quad-band WCDMA (FDD I/FDD V/FDD
VIII/FDD XI) Dual-mode Cellular Phone with Bluetooth, WLAN, Felica
and GPS

In accordance with FCC CFR 47 Part 2 and FCC CFR 47 Part 22

COMMERCIAL-IN-CONFIDENCE

FCC ID: APYHRO00193

Document 75921996 Report 08 Issue 1

May 2013



Product Service

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COMMERCIAL-IN-CONFIDENCE

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Document 75921996 Report 08 Issue 1

May 2013

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DATED

10 May 2013

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Part 2 and FCC CFR 47 Part 22. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

M Russell

P Joynson

S Milliken



S Hartley

G Lawler



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SECTION 1

REPORT SUMMARY

FCC Testing of the
Sharp 205SH AXGP & Quad-band WCDMA (FDD I/FDD V/FDD VIII/FDD XI) Dual-mode
Cellular Phone with Bluetooth, WLAN, Felica and GPS
In accordance with FCC CFR 47 Part 2 and FCC CFR 47 Part 22



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1.1 INTRODUCTION

The information contained in this report is intended to show verification of the FCC Testing of the Sharp 205SH AXGP & Quad-band WCDMA (FDD I/FDD V/FDD VIII/FDD XI) Dual-mode Cellular Phone with Bluetooth, WLAN, Felica and GPS to the requirements of FCC CFR 47 Part 2 and FCC CFR 47 Part 22.

Objective	To perform FCC Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Sharp Corporation
Model Number(s)	205SH
Serial Number(s)	IMEI 004401114778851 IMEI 004401114778976
Number of Samples Tested	2
Test Specification/Issue/Date	FCC CFR 47 Part 2 (2012) FCC CFR 47 Part 22 (2012)
Disposal	Held Pending Disposal
Reference Number	Not Applicable
Date	Not Applicable
Order Number	9669
Date	22 April 2013
Start of Test	14 April 2013
Finish of Test	1 May 2013
Name of Engineer(s)	M Russell P Joynson S Milliken S Hartley G Lawler
Related Document(s)	ANSI C63.4: 2009



1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC CFR 47 Part 2 and FCC CFR 47 Part 22 is shown below.

Section	Spec Clause		Test Description	Result	Comments/Base Standard
	Pt 2	Pt 22			
WCDMA FDD V					
2.1	2.1051	22.905	Spurious Emissions at Band Edge	Pass	
2.2	-	22.913 (a)	Effective Radiated Power	Pass	
2.3	2.1046	22.913 (a)	Maximum Peak Output Power - Conducted	Pass	
2.4	-	22.917	Emission Limitations for Cellular Equipment	Pass	
2.5	2.1051	22.917 (a)	Conducted Spurious Emissions	Pass	
2.6	2.1049 (h)	22.917 (b)	Occupied Bandwidth	Pass	
2.7	2.1047 (d)	-	Modulation Characteristics	-	Customer Declaration
2.8	2.1055	22.355	Frequency Stability	Pass	



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1.3 PRODUCT TECHNICAL DESCRIPTION

Please refer to the 205SH Model Description Form.

1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a Sharp 205SH AXGP & Quad-band WCDMA (FDD I/FDD V/FDD VIII/FDD XI) Dual-mode Cellular Phone with Bluetooth, WLAN, Felica and GPS. A full technical description can be found in the manufacturer's documentation.

1.5 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated in a shielded enclosure.

The EUT was powered from a 4.0 V DC supply.

FCC Accreditation
90987 Octagon House, Fareham Test Laboratory

1.6 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standard were made during testing,

1.7 MODIFICATION RECORD

Modification 0 - No modifications were made to the test sample during testing.



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SECTION 2

TEST DETAILS

FCC Testing of the
Sharp 205SH AXGP & Quad-band WCDMA (FDD I/FDD V/FDD VIII/FDD XI) Dual-mode
Cellular Phone with Bluetooth, WLAN, Felica and GPS
In accordance with FCC CFR 47 Part 2 and FCC CFR 47 Part 22



Product Service

2.1 SPURIOUS EMISSIONS AT BAND EDGE

2.1.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1051
FCC CFR 47 Part 22, Clause 22.905

2.1.2 Equipment Under Test and Modification State

205SH S/N: IMEI 004401114778851 - Modification State 0

2.1.3 Date of Test

30 April 2013

2.1.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.5 Test Procedure

In accordance with 22.917(e), any emissions outside of the block edges shall be attenuated by at least $43 + 10 \log (P)$. The measurements are shown to ± 1 MHz from the block edges. The plots shown under the Spurious Emissions sections covers the required range of 9 kHz to 9 GHz.

The reference power and path losses of all channels used for testing in each frequency block were measured. Having entered the reference level offset, a limit line was displayed, showing the $-13 \text{ dBm} (43 + 10 \log (P))$, limit. The EUT was operated at maximum power WCDMA modulation schemes.

2.1.6 Environmental Conditions

Ambient Temperature	25.3°C
Relative Humidity	20.7%



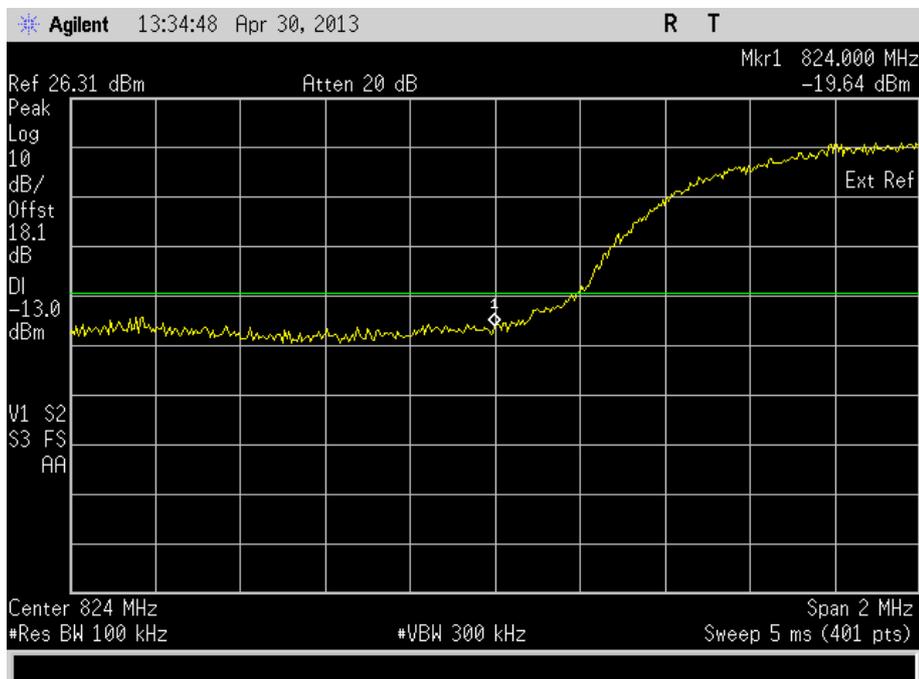
Product Service

2.1.7 Test Results

4.0 V DC Supply

Frequency Block (MHz)	Lower Block Edge Test Channels/Frequencies	Upper Block Edge Test Channels/Frequencies
A : (824.0 – 835.0)	Channel : 4133 Frequency : 826.6 MHz	N/A
B : (846.5 – 849.0)	N/A	Channel : 4232 Frequency : 846.6MHz

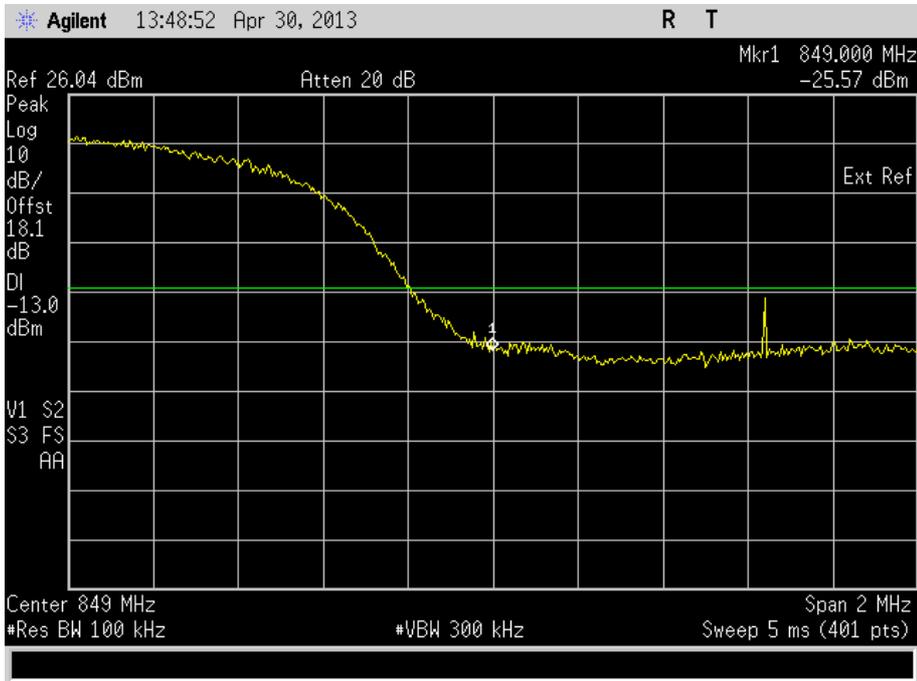
Frequency Block A





Product Service

Frequency Block B



Limit Clause

-13 dBm at block edge.



2.2 EFFECTIVE RADIATED POWER

2.2.1 Specification Reference

FCC CFR 47 Part 22, Clause 22.913 (a)

2.2.2 Equipment Under Test and Modification State

205SH S/N: IMEI 004401114778851 - Modification State 0

2.2.3 Date of Test

18 April 2013

2.2.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.5 Test Procedure

Measurements of the fundamental from the EUT were obtained with the Measurement Antenna in both Horizontal and Vertical Polarisation. The fundamental frequency was maximised by adjusting the antenna height, antenna polarisation and turntable azimuth. A peak detector was used with the trace set to max hold. The maximum result was recorded.

The EUT was then removed from the chamber and replaced with a substitution antenna. Using a signal generator the level was adjusted to achieve the same value on the measuring instrument as previously recorded with the EUT. The final result (ERP) was determined by a calculation using the signal generator level, antenna gain and cable loss.

The measurements were performed at a 3m distance unless otherwise stated.

2.2.6 Environmental Conditions

Ambient Temperature	20.0°C
Relative Humidity	34.0%

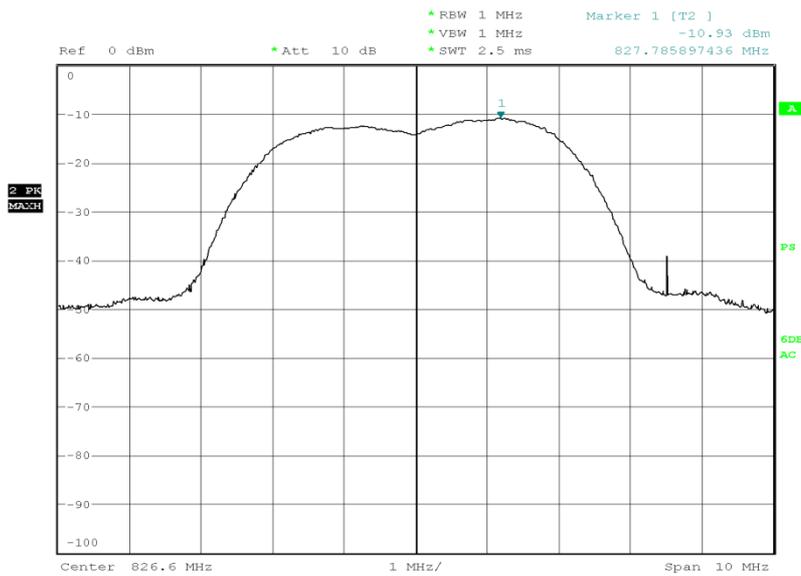


Product Service

2.2.7 Test Results

826.600 MHz

Result (dBm)	Result (W)
20.0	0.100



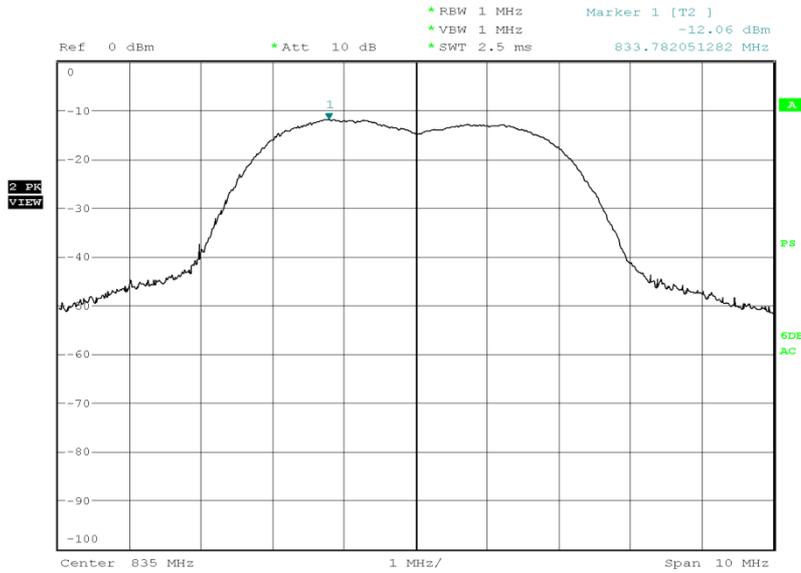
Date: 18.APR.2013 11:52:18



Product Service

835.000 MHz

Result (dBm)	Result (W)
20.2	0.105



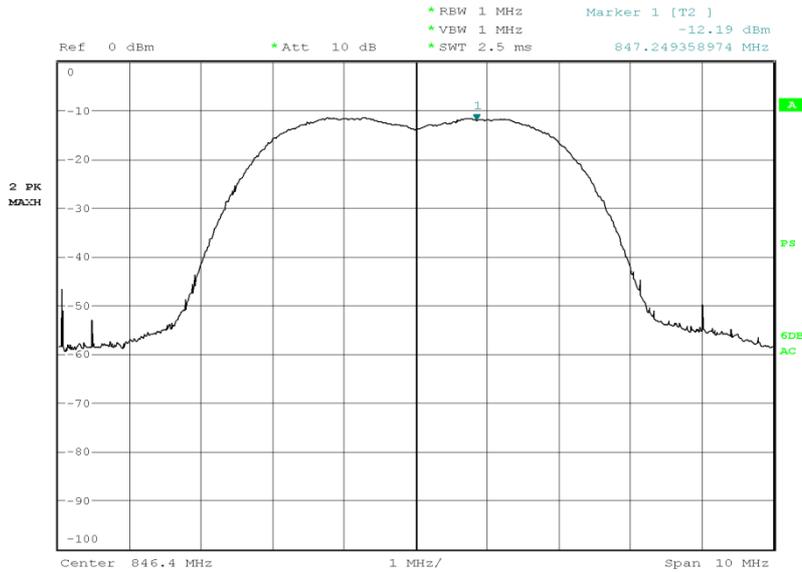
Date: 18.APR.2013 12:00:10



Product Service

846.400 MHz

Result (dBm)	Result (W)
20.7	0.117



Date: 18.APR.2013 12:20:54

Limit Clause

Mobile – 7 W or 38.45 dBm
 Base Stations – 500 W or 57 dBm



Product Service

2.3 MAXIMUM PEAK OUTPUT POWER - CONDUCTED

2.3.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1046
FCC CFR 47 Part 22, Clause 22.913 (a)

2.3.2 Equipment Under Test and Modification State

205SH S/N: IMEI 004401114778976 - Modification State 0

2.3.3 Date of Test

17 April 2013

2.3.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.5 Test Procedure

Using a spectrum analyser and attenuator(s), the output power of the EUT was measured at the antenna terminals.

The EUT supports WCDMA and was tested in this mode of operation.

2.3.6 Environmental Conditions

Ambient Temperature	22.3°C
Relative Humidity	38.7%



Product Service

2.3.7 Test Results

4.0 V DC Supply

826.600 MHz

Result (dBm)	Result (W)
27.21	0.526

835.000 MHz

Result (dBm)	Result (W)
27.02	0.503

846.400 MHz

Result (dBm)	Result (W)
26.58	0.455

Limit Clause

Mobile – 7 W or 38.45 dBm

Base Stations – 500 W or 57 dBm



2.4 EMISSION LIMITATIONS FOR CELLULAR EQUIPMENT

2.4.1 Specification Reference

FCC CFR 47 Part 22, Clause 22.917

2.4.2 Equipment Under Test and Modification State

205SH S/N: IMEI 004401114778851 - Modification State 0

2.4.3 Date of Test

18 April 2013

2.4.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.5 Test Procedure

A preliminary profile of the Spurious Radiated Emissions was obtained up to the 10th harmonic by operating the EUT on a remotely controlled turntable within a semi-anechoic chamber. Measurements of emissions from the EUT were obtained with the Measurement Antenna in both Horizontal and Vertical Polarisation. The profiling produced a list of the worst-case emissions together with the EUT azimuth and antenna polarisation.

Using the information from the preliminary profiling of the EUT, the list of emissions was then confirmed or updated under Alternative Open Site conditions. Emission levels were maximised by adjusting the antenna height, antenna polarisation and turntable azimuth.

The EUT was set to transmit on maximum power with modulation. The EUT was tested on bottom, middle and top channels at maximum power.

For any emissions found the EUT was then removed from the chamber and replaced with a substitution antenna. Using a signal generator the level was adjusted to achieve the same value on the measuring instrument as previously recorded with the EUT. The final result was determined by a calculation using the signal generator level, antenna gain and cable loss.

The measurements were performed at a 3m distance unless otherwise stated.

2.4.6 Environmental Conditions

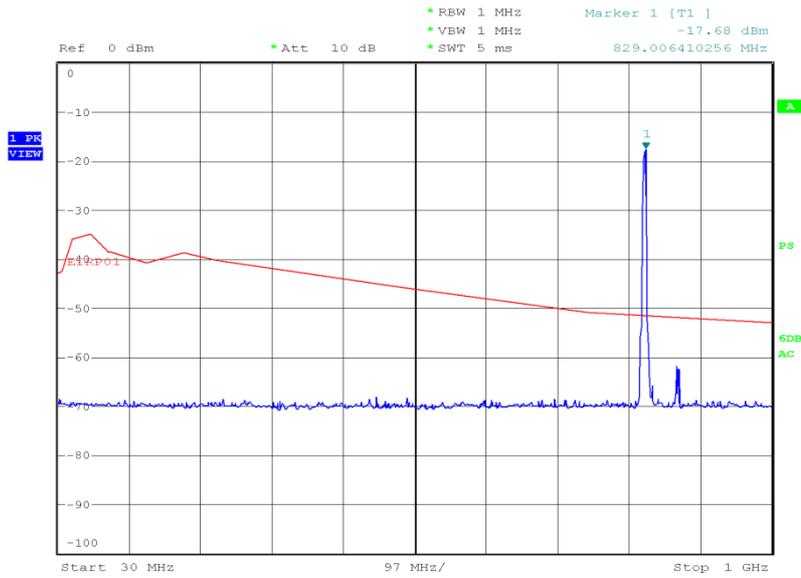
Ambient Temperature	20.0°C
Relative Humidity	34.0%



2.4.7 Test Results

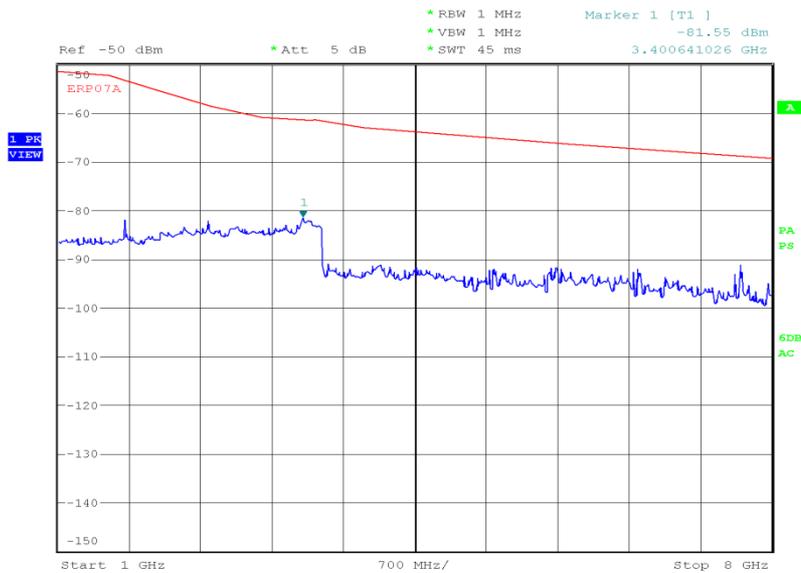
826.600 MHz

30 MHz to 1 GHz



Date: 17.APR.2013 16:30:22

1 GHz to 8 GHz

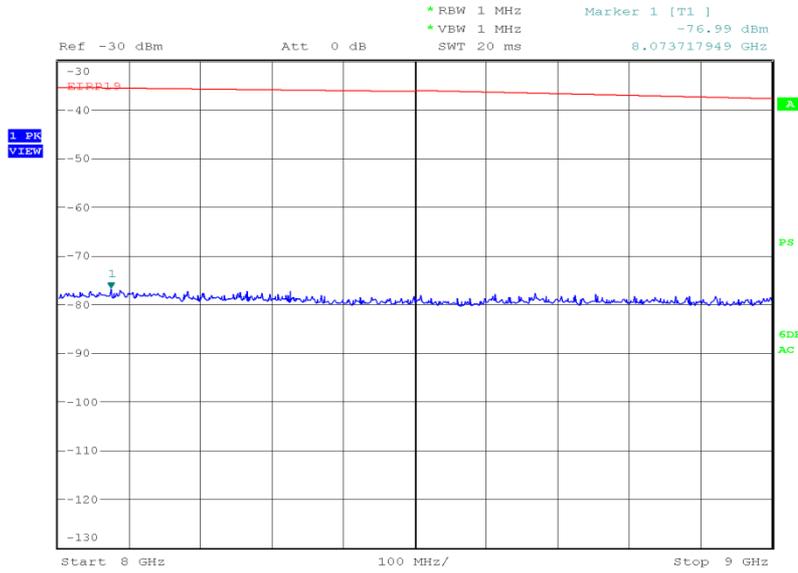


Date: 17.APR.2013 14:46:45



Product Service

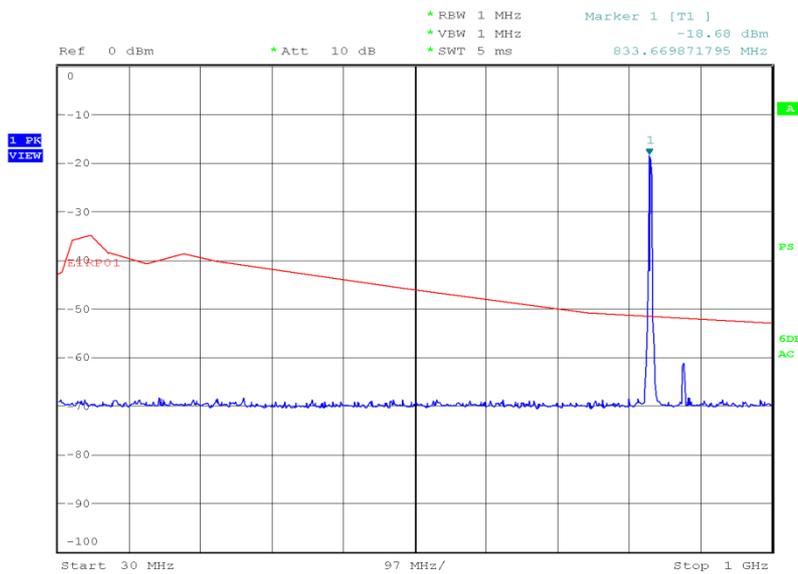
8 GHz to 9 GHz



Date: 17.APR.2013 15:17:22

835.000 MHz

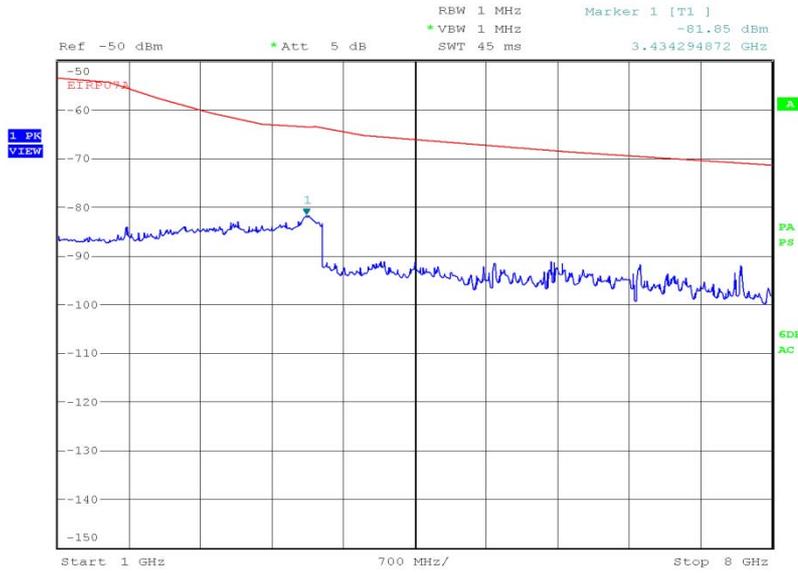
30 MHz to 1 GHz



Date: 17.APR.2013 16:25:08

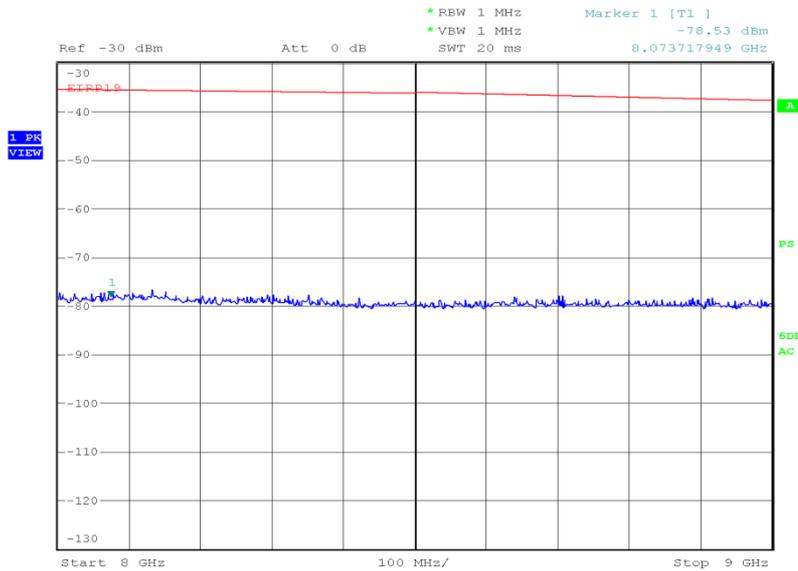


1 GHz to 8 GHz



Date: 17.APR.2013 15:40:19

8 GHz to 9 GHz



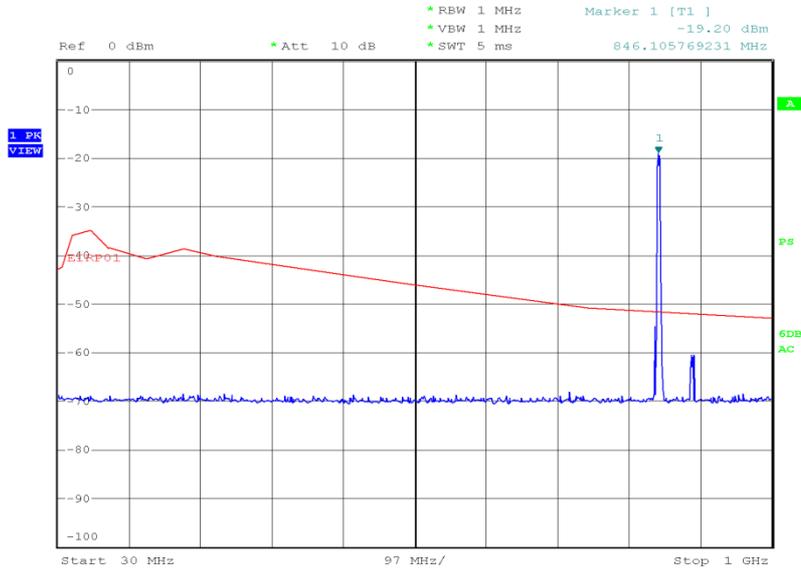
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Product Service

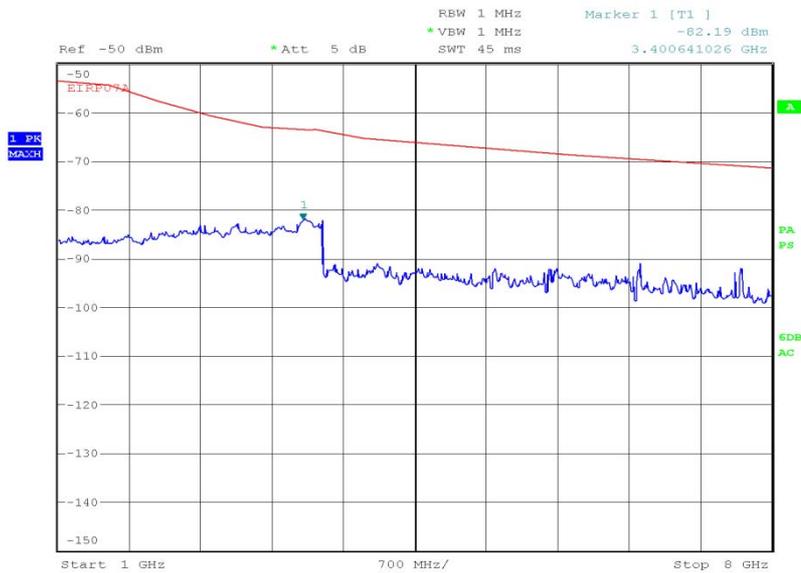
846.400 MHz

30 MHz to 1 GHz



Date: 17.APR.2013 16:19:29

1 GHz to 8 GHz

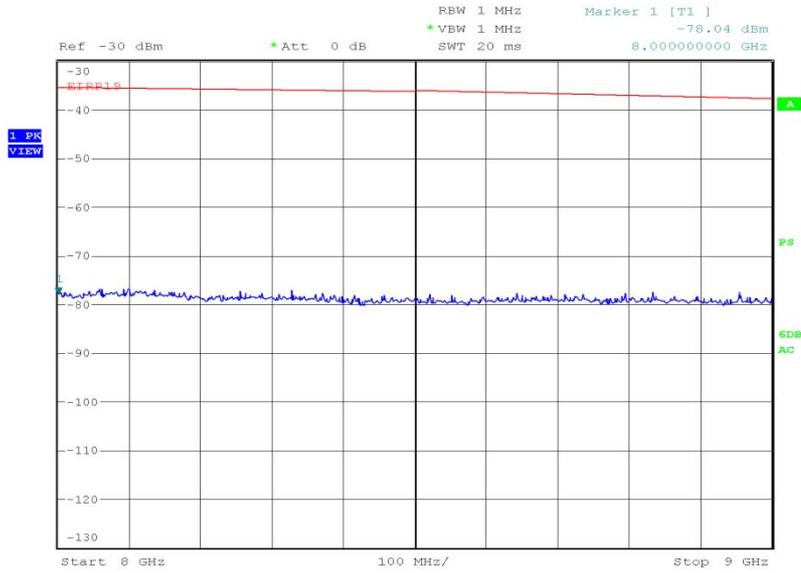


Date: 17.APR.2013 15:53:53



Product Service

8 GHz to 9 GHz



Date: 17.APR.2013 16:02:30

Limit Clause

43+10log(P) or -13 dBm



Product Service

2.5 CONDUCTED SPURIOUS EMISSIONS

2.5.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1051
FCC CFR 47 Part 22, Clause 22.917 (a)

2.5.2 Equipment Under Test and Modification State

205SH S/N: IMEI 004401114778851 - Modification State 0

2.5.3 Date of Test

30 April 2013

2.5.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.5.5 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 9 kHz to the 10th harmonic. The EUT was set to transmit on full power with modulation. The EUT was tested on Bottom, Middle and Top channels for maximum power. The resolution and video bandwidths were set to 1 MHz and 3 MHz thus meeting the requirements of Part 22.917(b). The spectrum analyser detector was set to max hold.

From 9 kHz to 4 GHz, an attenuator was used. For measuring the range 1.5 GHz to 9 GHz an attenuator and high pass filter were used. This was to reduce saturation effects in the spectrum analyser.

The maximum path loss across the measurement bands were used as reference level offsets to ensure worst case.

2.5.6 Environmental Conditions

Ambient Temperature	25.3°C
Relative Humidity	20.7%

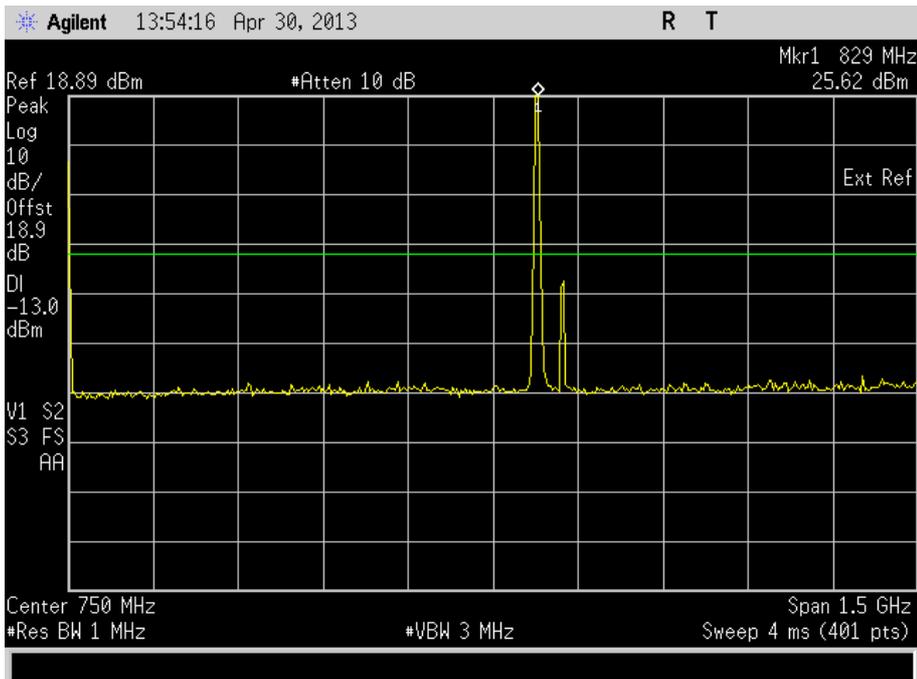


Product Service

2.5.7 Test Results

826.600 MHz

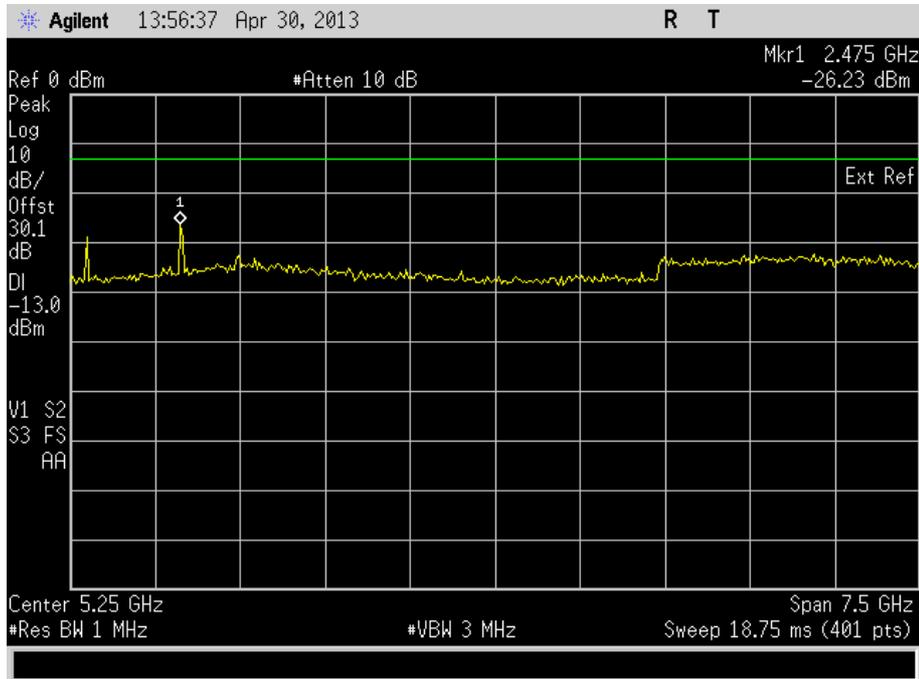
9 kHz to 1.5 GHz





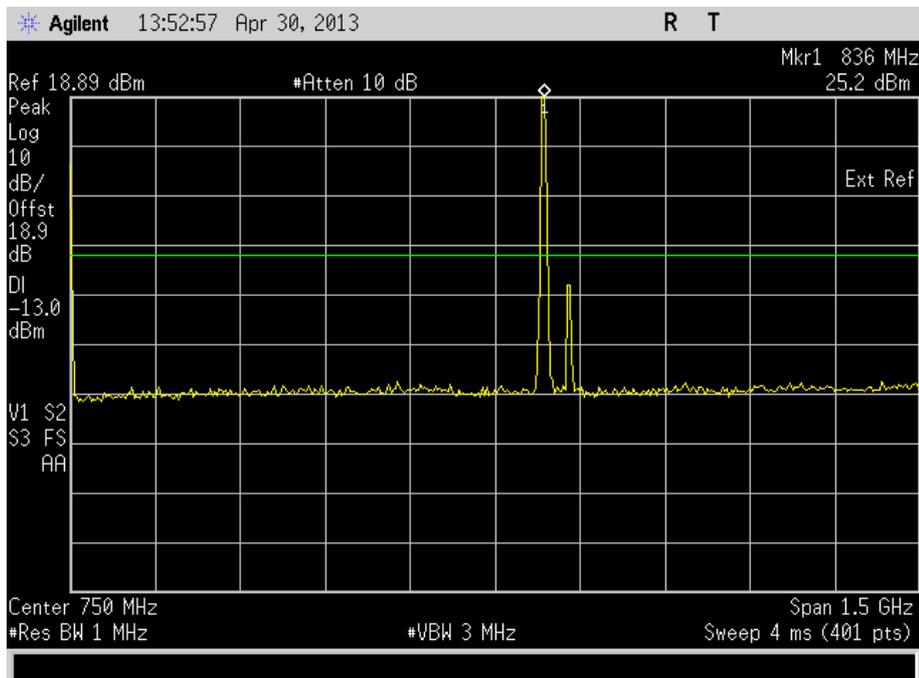
Product Service

1.5 GHz to 9 GHz



835.000 MHz

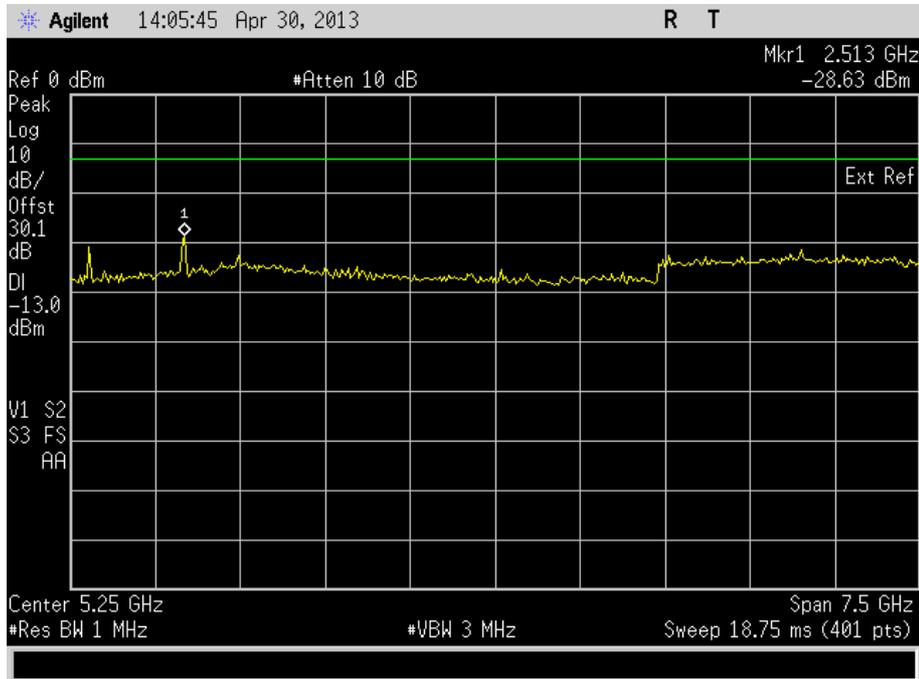
9 kHz to 1.5 GHz





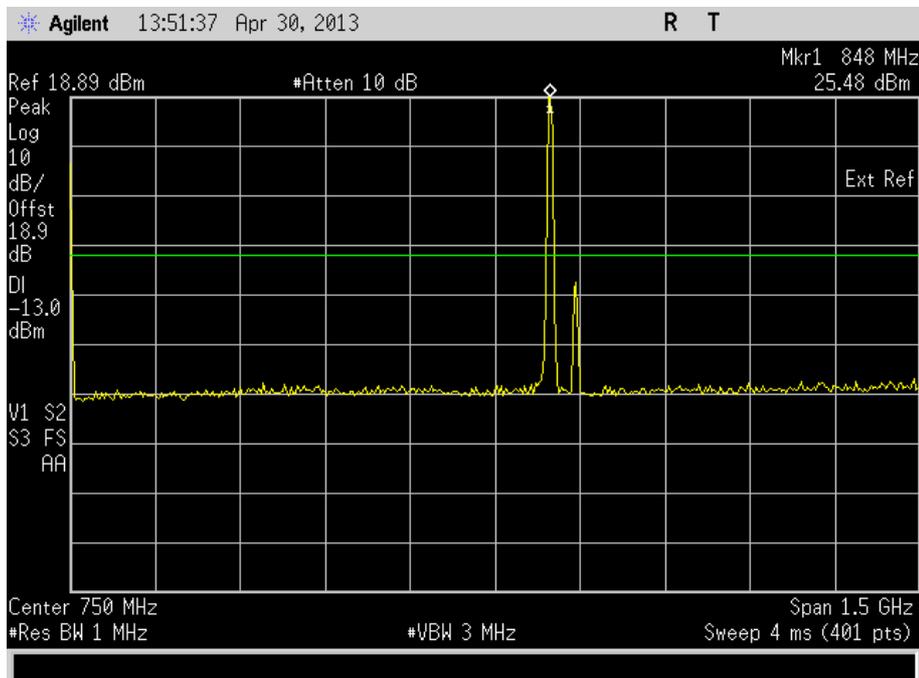
Product Service

1.5 GHz to 9 GHz



846.400 MHz

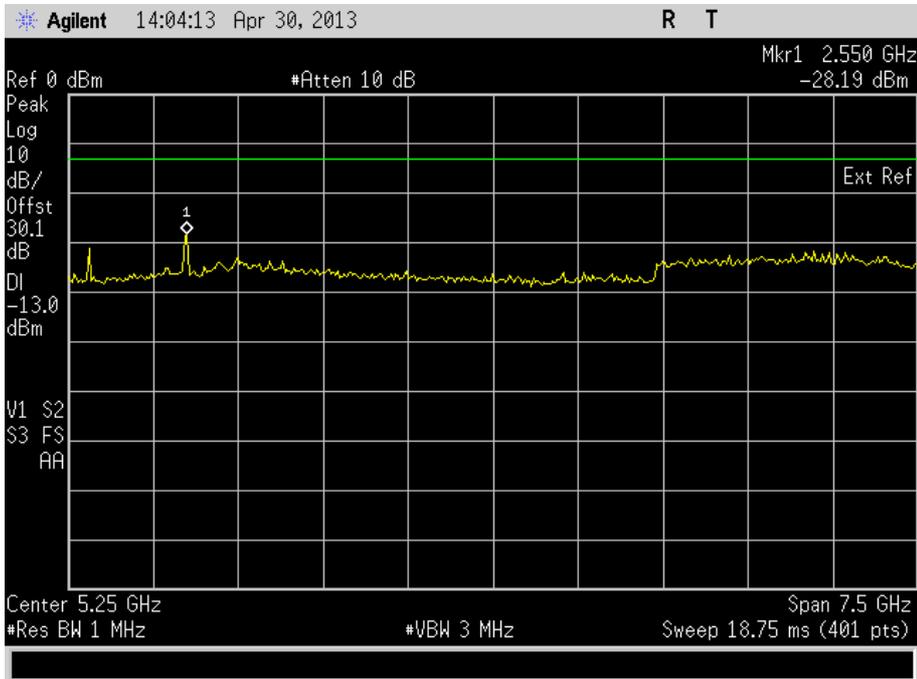
9 kHz to 1.5 GHz





Product Service

1.5 GHz to 9 GHz



Limit Clause

43+10log(P) or -13 dBm



Product Service

2.6 OCCUPIED BANDWIDTH

2.6.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1049 (h)
FCC CFR 47 Part 22, Clause 22.917 (b)

2.6.2 Equipment Under Test and Modification State

205SH S/N: IMEI 004401114778851 - Modification State 0

2.6.3 Date of Test

30 April 2013

2.6.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.6.5 Test Procedure

The EUT was transmitting at maximum power, with modulation. Using a resolution bandwidth of 10 kHz and a video bandwidth of 30 kHz, the -26 dBc points were established and the emission bandwidth determined.

The plot of the following pages shows the resultant display from the Spectrum Analyser.

2.6.6 Environmental Conditions

Ambient Temperature	25.3°C
Relative Humidity	20.7%



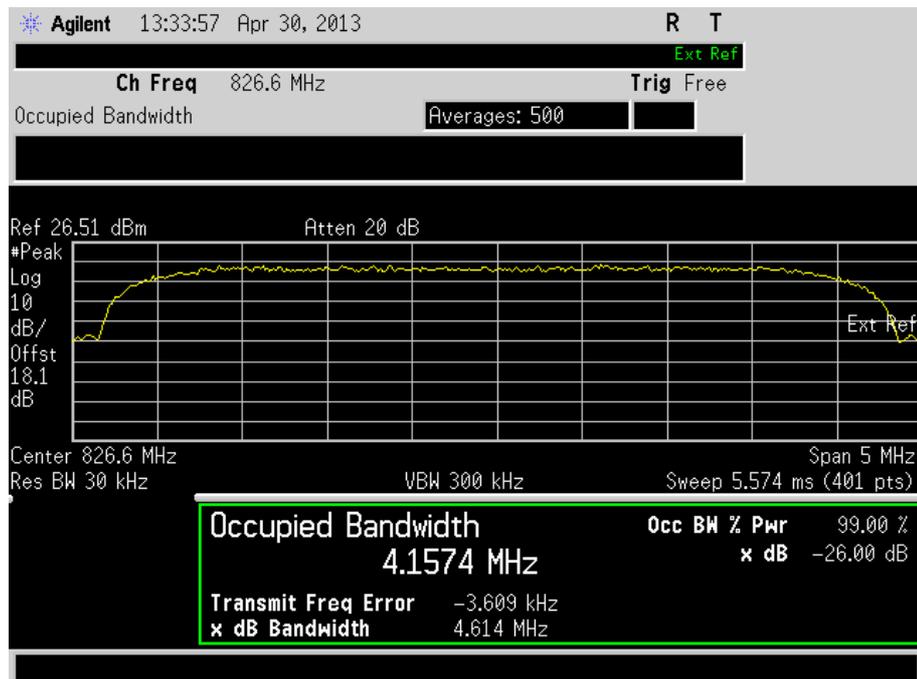
Product Service

2.6.7 Test Results

4.0 V DC Supply

826.600 MHz

Occupied Bandwidth (kHz)
4157.441

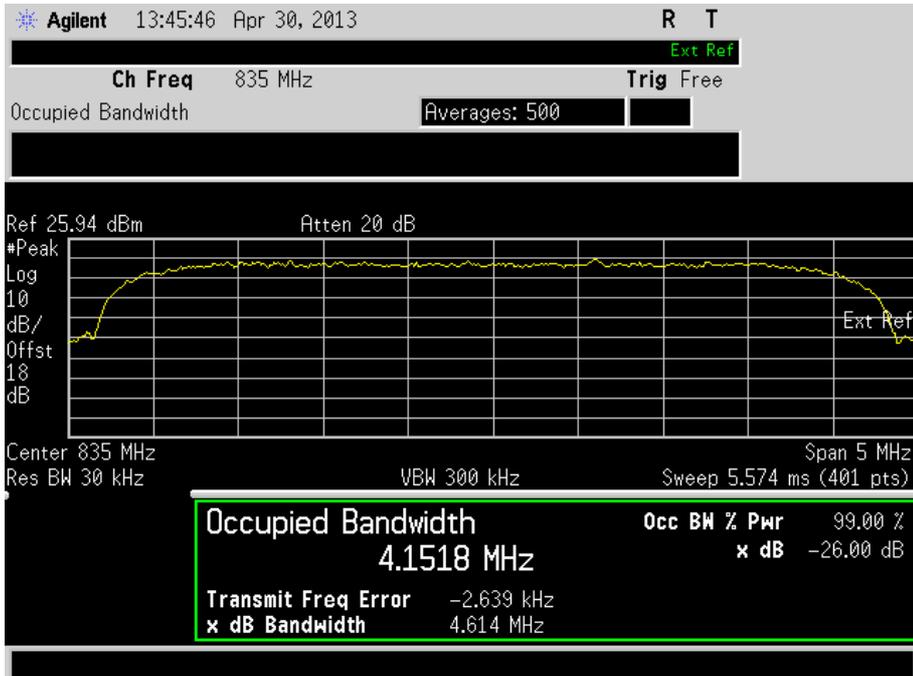




Product Service

835.000 MHz

Occupied Bandwidth (kHz)
4151.753

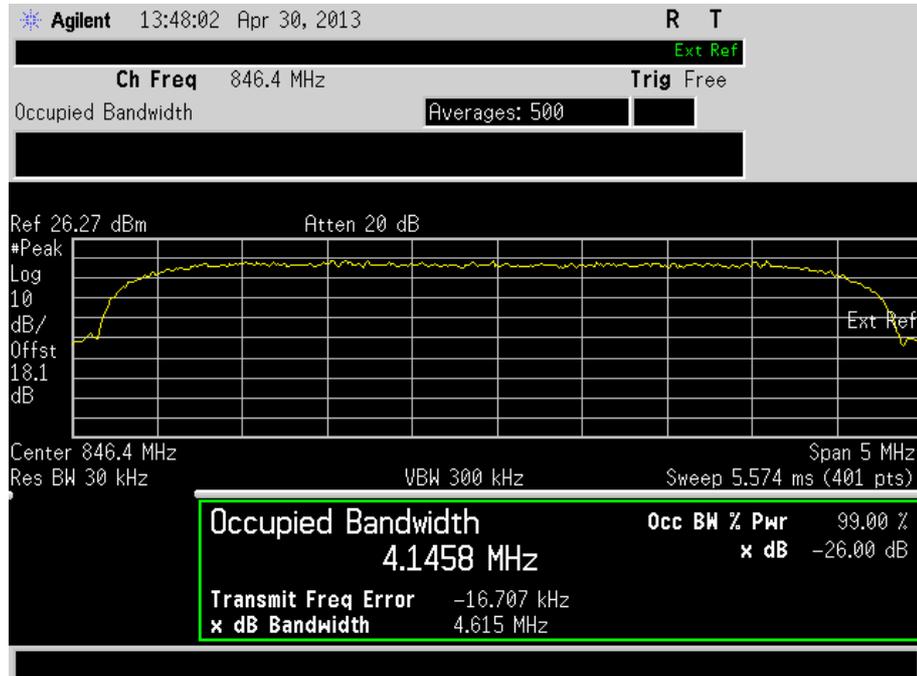




Product Service

846.400 MHz

Occupied Bandwidth (kHz)
4145.835



Limit Clause

The occupied bandwidth, that is the frequency bandwidth such that, below is lower and above is upper frequency limits, the mean powers radiated are each equal to 0.5% of the total mean power radiated by a given emission.



2.7 MODULATION CHARACTERISTICS

2.7.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1047 (d)

2.7.2 Equipment Under Test

205SH

2.7.3 Test Results

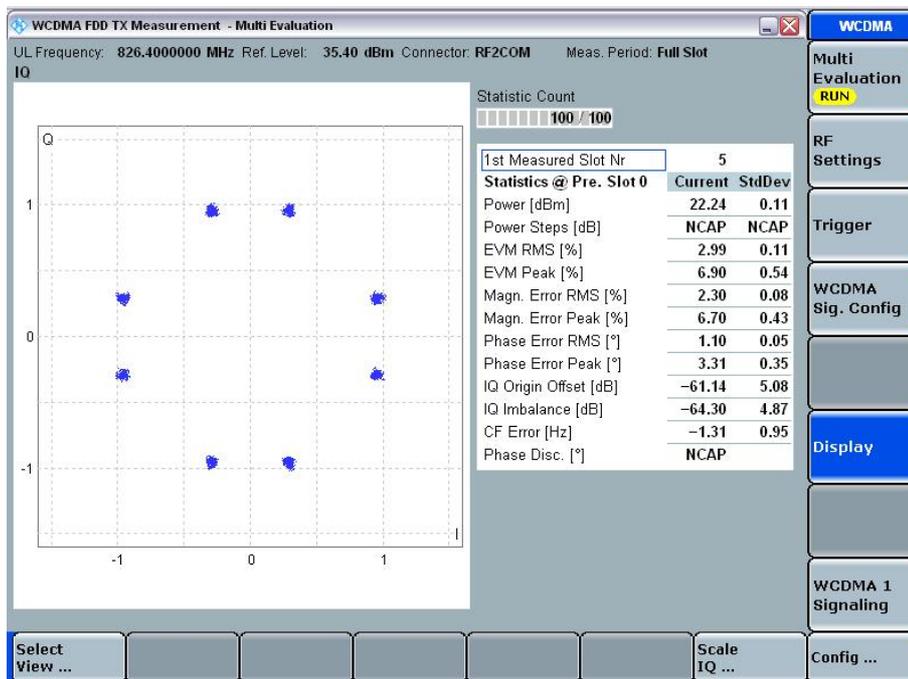
For the period of test the EUT met the requirements of FCC CFR 47 Part 2 for Modulation Characteristics.

The test results are shown below.

4.0 V DC Supply

QPSK

Constellation Diagram

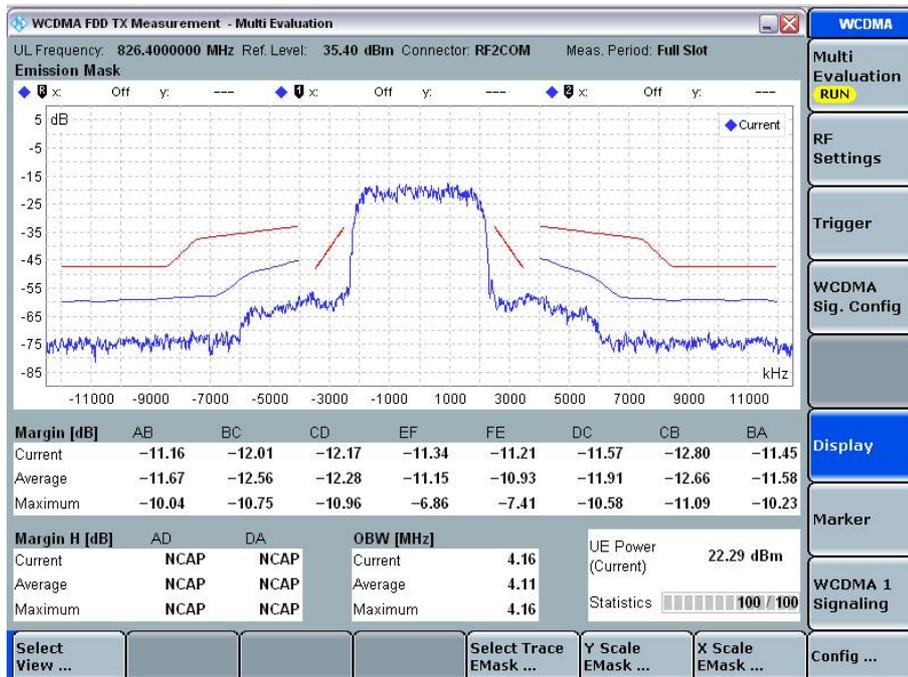




I and Q Code Domain



Spectrum Emission Mask



Limit Clause

A curve or equivalent data which shows that the equipment will meet the modulation requirements of the rules under which the equipment is to be licensed.



Product Service

2.8 FREQUENCY STABILITY

2.8.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1055
FCC CFR 47 Part 22, Clause 22.355

2.8.2 Equipment Under Test and Modification State

205SH S/N: IMEI 004401114778851 - Modification State 0

2.8.3 Date of Test

30 April 2013 & 1 May 2013

2.8.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.8.5 Test Procedure

The EUT was set to transmit on maximum power with modulation. An FSQ Signal Analyser, was used to measure the frequency error. The maximum result was taken over 200 bursts. The temperature was adjusted between -30°C and +50°C in 10° steps as per 2.1055 and the frequency error was measured at each temperature.

2.8.6 Environmental Conditions

Ambient Temperature	24.0 - 25.3°C
Relative Humidity	20.7 - 27.2%



Product Service

2.8.7 Test Results

Temperature Interval (°C)	Deviation (ppm)
-30	-0.021
-20	-0.014
-10	-0.009
0	-0.004
+10	0.030
+20	-0.018
+30	-0.009
+40	0.030
+50	-0.022

Limit Clause

Frequency Range (MHz)	Base, Fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile ≤ 3 watts (ppm)
25 to 50	20	20	50
50 to 450	5	5	50
450 to 512	2.5	5	5
821 to 896	1.5	2.5	2.5
928 to 929	5.0	-	-
929 to 960	1.5	-	-
2110 to 2220	10	-	-



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Under Voltage Variations

835.000 MHz

DC Voltage (V)	Deviation (ppm)
4.0 V DC	-0.018
3.7 V DC	-0.003
4.0 V DC	-0.018

Limit Clause

Frequency Range (MHz)	Base, Fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile ≤ 3 watts (ppm)
25 to 50	20	20	50
50 to 450	5	5	50
450 to 512	2.5	5	5
821 to 896	1.5	2.5	2.5
928 to 929	5.0	n/a	n/a
929 to 960	1.5	n/a	n/a
2110 to 2220	10	n/a	n/a



Product Service

SECTION 3

TEST EQUIPMENT USED



3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.1 – Spurious Emissions at Band Edge					
Power Supply Unit	Farnell	H60-25	1092	-	O/P Mon
Spectrum Analyser	Hewlett Packard	E4407B	1154	12	17-Jul-2013
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	23-Jul-2013
Multimeter	Iso-tech	IDM101	2424	12	10-Sep-2013
Filter	Daden Anthony Ass	MH-1500-7SS	2778	12	31-Jan-2014
Hygrometer	Rotronic	I-1000	3220	12	13-Jun-2013
ESA-E Series Spectrum Analyser	Agilent	E4402B	3348	12	14-Jun-2013
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	31-Aug-2013
DC - 12.4 GHz 10 dB Attenuator	Suhner	6810.17.A	3965	12	27-Jun-2013
Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	4144	12	10-May-2013
Section 2.2 – Effective Radiated Power					
Peak Power Analyser	Hewlett Packard	8990A	107	12	14-Feb-2014
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	234	12	3-Apr-2014
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	235	12	9-Nov-2013
Attenuator 20dB 5W	Marconi	56534-904H	377	12	8-May-2013
Signal Generator	Marconi	2031	762	12	4-Apr-2014
Spectrum Analyser	Hewlett Packard	E4407B	1154	12	17-Jul-2013
Screened Room (5)	Rainford	Rainford	1545	36	25-Dec-2013
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Antenna (Bilog)	Chase	CBL6143	2904	24	12-May-2013
Antenna (DRG Horn)	ETS-LINDGREN	3115	3125	12	24-May-2013
Signal Generator (10MHz to 40GHz)	Rohde & Schwarz	SMR40	3171	12	30-Aug-2013
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	11-Oct-2013
7m Armoured RF Cable	SSI Cable Corp.	1501-13-13-7m WA(-)	3600	-	TU
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	-	TU
Tilt Antenna Mast	maturo GmbH	TAM 4.0-P	3916	-	TU
Mast Controller	maturo GmbH	NCD	3917	-	TU
Section 2.3 – Maximum Peak Output Power - Conducted					
Power Supply Unit	Farnell	H60-25	1092	-	O/P Mon
Spectrum Analyser	Hewlett Packard	E4407B	1154	12	17-Jul-2013
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	23-Jul-2013
Multimeter	Iso-tech	IDM101	2424	12	10-Sep-2013
Hygrometer	Rotronic	I-1000	3220	12	13-Jun-2013
Signal Analyser	Rohde & Schwarz	FSQ 26	3545	12	9-May-2013
Combiner/Splitter	Weinschel	1506A	3878	12	19-Mar-2014
DC - 12.4 GHz 10 dB Attenuator	Suhner	6810.17.A	3965	12	27-Jun-2013
P-Series Power Meter	Agilent	N1911A	3981	12	17-Sep-2013
Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	4144	12	10-May-2013



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.4 – Emission Limitations for Cellular Equipment					
Antenna (Double Ridge Guide)	Link Microtek Ltd	AM180HA-K-TU2	230	24	13-Sep-2013
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	234	12	3-Apr-2014
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	235	12	9-Nov-2013
Dual Power Supply Unit	Thurlby	PL320	288	-	TU
Filter (High Pass)	Lorch	SHP7-7000-SR	566	12	20-Feb-2014
Antenna (Double Ridge Guide)	Q-Par Angus Ltd	QSH 180K	1511	24	7-Nov-2014
Pre-Amplifier	Phase One	PS04-0086	1533	12	27-Sep-2013
Pre-Amplifier	Phase One	PS04-0087	1534	12	28-Sep-2013
Screened Room (5)	Rainford	Rainford	1545	36	25-Dec-2013
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Antenna (Bilog)	Chase	CBL6143	2904	24	12-May-2013
Signal Generator (10MHz to 40GHz)	Rohde & Schwarz	SMR40	3171	12	30-Aug-2013
Amplifier (1 - 8GHz)	Phase One	PS06-0060	3175	12	10-Jul-2013
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	11-Oct-2013
3 GHz High Pass Filter	K&L Microwave	11SH10-3000/X18000-O/O	3552	12	1-Feb-2014
'2.92mm' - '2.92mm' RF Cable (2m)	Rhophase	KPS-1503-2000-KPS	3694	12	25-Oct-2013
'2.92mm' - '2.92mm' RF Cable (2m)	Rhophase	KPS-1503-2000-KPS	3695	12	15-Oct-2013
500N compact force gauge	Mecmesin	Mecmesin 500N	3717	12	4-Oct-2013
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	-	TU
Tilt Antenna Mast	mature GmbH	TAM 4.0-P	3916	-	TU
Mast Controller	mature GmbH	NCD	3917	-	TU
1 metre, SMA to SMA	Suhner	Sucoflex armoured cable	4048	-	O/P Mon
1 Metre SMA Cable	Rhophase	3PS-1801A-1000-3PS	4101	12	25-Oct-2013
Section 2.5 - Conducted Spurious Emissions					
Attenuator (20dB/ 2W)	Pasternack	PE7004-20	489	12	18-Oct-2013
Filter (High Pass)	Lorch	SHP7-7000-SR	566	12	20-Feb-2014
Spectrum Analyser	Hewlett Packard	E4407B	1154	12	17-Jul-2013
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	23-Jul-2013
4GHz HPF	Sematron	F-100-4000-5-R	2245	-	TU
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	30-Nov-2013
Filter	Daden Anthony Ass	MH-1500-7SS	2778	12	31-Jan-2014
Test Receiver	Rohde & Schwarz	ESIB40	2941	12	23-Oct-2013
Hygrometer	Rotronic	I-1000	3220	12	13-Jun-2013
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	31-Aug-2013
'2.92mm' - '2.92mm' RF Cable (2m)	Rhophase	KPS-1503-2000-KPS	3694	12	25-Oct-2013
'2.92mm' - '2.92mm' RF Cable (2m)	Rhophase	KPS-1503-2000-KPS	3695	12	15-Oct-2013
Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	4144	12	10-May-2013



Product Service

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.6 - Occupied Bandwidth					
Power Supply Unit	Farnell	H60-25	1092	-	O/P Mon
Spectrum Analyser	Hewlett Packard	E4407B	1154	12	17-Jul-2013
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	23-Jul-2013
Multimeter	Iso-tech	IDM101	2424	12	10-Sep-2013
Hygrometer	Rotronic	I-1000	3220	12	13-Jun-2013
Signal Analyser	Rohde & Schwarz	FSQ 26	3545	12	9-May-2013
Combiner/Splitter	Weinschel	1506A	3878	12	19-Mar-2014
DC - 12.4 GHz 10 dB Attenuator	Suhner	6810.17.A	3965	12	27-Jun-2013
P-Series Power Meter	Agilent	N1911A	3981	12	17-Sep-2013
Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	4144	12	10-May-2013
Section 2.8 - Frequency Stability					
Climatic Chamber	Votsch	VT4002	161	-	O/P Mon
RF Coupler	TUV SUD Product Service	RFC1	414	-	TU
Power Supply Unit	Farnell	H60-25	1092	-	O/P Mon
Spectrum Analyser	Hewlett Packard	E4407B	1154	12	17-Jul-2013
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	23-Jul-2013
Multimeter	Iso-tech	IDM101	2424	12	10-Sep-2013
Thermocouple Thermometer	Fluke	51	3172	12	30-Jul-2013
Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	4144	12	10-May-2013

TU – Traceability Unscheduled

O/P MON – Output Monitored with Calibrated Equipment



3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:-

Test Discipline	MU
Maximum Peak Output Power - Conducted	± 0.70 dB
Emission Limitations for Cellular Equipment	30MHz to 1GHz: ± 5.1 dB 1GHz to 40GHz: ± 6.3 dB
Conducted Spurious Emissions	± 3.454 dB
Effective Radiated Power	30MHz to 1GHz: ± 5.1 dB 1GHz to 40GHz: ± 6.3 dB
Spurious Emissions at Band Edge	30MHz to 1GHz: ± 5.1 dB 1GHz to 40GHz: ± 6.3 dB
Occupied Bandwidth	± 16.74 kHz
Modulation Characteristics	-
Frequency Stability	± 46.70 Hz



Product Service

SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



Product Service

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



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