TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: SoftBank 931P

To: FCC Part 15.225: 2008 Subpart C

Test Report Serial No:
RFI/RPT1/RP75018JD03A

This Test Report Is Issued Under The Authority Of Brian Watson, Operations Director: 	
Checked By:	A. HENRIQUES
Signature: 	
Date of Issue:	08 May 2009

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1. Customer Information

Company Name:	Panasonic Mobile Comms Dev of Europe Ltd
Address:	Panasonic House Willoughby Road Bracknell Berkshire RG12 8FP

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR15.225
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2008: Part 15 Subpart C (Radio Frequency Devices) - Section 15.225
Specification Reference:	47CFR15.107 and 47CFR15.109
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2008: Part 15 Subpart B (Radio Frequency Devices) - Sections 15.107 and 15.109
Site Registration:	FCC: 209735
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Dates:	24 April to 28 April 2009

2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Port Type	Result
Part 15.107(a)	Receiver/Idle Mode AC Conducted Spurious Emissions	AC Mains	✓
Part 15.109(a) 15.225(d)	Receiver/Idle Mode Radiated Spurious Emissions	Enclosure	✓
Part 15.225(a)(b)(c)(d)	Transmitter Fundamental Field Strength	Antenna	✓
Part 15.209(a), 15.225(d)	Transmitter Radiated Spurious Emissions	Antenna	✓
Part 15.209(a) 15.225(c)(d)	Transmitter Band Edge Radiated Emissions	Antenna	✓
Part 2.1049	Transmitter 20 dB Bandwidth	Antenna	✓
Part 15.225(e)	Transmitter Frequency Stability (Temperature & Voltage Variation)	Antenna	✓

Key to Results

✓ = Complied ✗ = Did not comply

2.3. Methods and Procedures

Reference:	ANSI C63.4 (2003)
Title:	American National Standard Methods of Measurement of Electromagnetic Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

2.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	SoftBank 931P
Model Name or Number:	EB-VS94JZA
Hardware Version:	Rev B
Software Version:	931PVA15
IMEI Number(s):	004401220733253 & 004401220733303
FCC ID Number:	UCE209017A

Description:	AC charger
Brand Name:	SoftBank
Model Name or Number:	ZTDAA1

Description:	DC charger
Brand Name:	SoftBank
Model Name or Number:	PMJAA1

Description:	USB data cable
Brand Name:	SoftBank
Model Name or Number:	ZTFE01

Description:	Micro-SD Memory Card
Brand Name:	None stated
Model Name or Number:	None stated

Description:	Personal hands-free
Brand Name:	SoftBank
Model Name or Number:	ZTCK01

Description:	Hands-free Converter
Brand Name:	SoftBank
Model Name or Number:	PMLAJ1

Description:	Battery 3.7V 800 mAh
Brand Name:	SoftBank
Model Name or Number:	PMBAP1

3.2. Description of EUT

The equipment under test was a dual mode (W-CDMA FDDI/GSM900/1800/1900MHz) Cellular Mobile Telephone with Bluetooth and RFID

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Tested Technology:	RFID	
Channel Spacing:	Single channel device	
Transmit Frequency:	13.56 MHz	
Receive Frequency:	13.56 MHz	
Power Supply Requirement:	Nominal	3.7 V
	Minimum	3.4 V
	Maximum	4.2 V
Tested Temperature Range:	Minimum	-20°C
	Maximum	+50°C

3.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	Dummy battery
Model Name or Number:	Not stated
Serial Number:	Not stated

Description:	Laptop PC
Brand Name:	Sony VAIO PCG-551N
Model Name or Number:	VAIO PCG-551N
Serial Number:	283506 2 1208763

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating modes:

- Receiver/Idle mode
- Constantly transmitting at full power with a modulated carrier in RFID test mode

4.2. Configuration and Peripherals

The EUT was tested in the following configuration:

- The RFID transmitter was enabled using a bespoke application on a laptop PC supplied by the customer.
- Radiated spurious emissions tests were performed with the personal hands free connected to the EUT as this was found to be the worst case during pre-scans. All accessories were individually connected and measurements made during pre-scans to determine the worst case combination.
- As the EUT is not capable of transmitting while charging, no AC Mains Conducted Emissions (150 kHz to 30 MHz) test was performed in transmit mode.
- The dummy battery was fitted during frequency measurement tests. This was connected to a bench power supply and the DC voltage level adjusted and monitored accordingly.

5. Measurements, Examinations and Derived Results

5.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to *Section 6. Measurement Uncertainty* for details.

5.2. Test Results

5.3. Receiver/Idle Mode AC Conducted Spurious Emissions

Test Summary:

FCC Part:	15.107(a)
Test Method Used:	As detailed in ANSI C63.4 Section 7 and relevant annexes
EUT Tested (IMEI):	004401220733253

Environmental Conditions:

Temperature Range (°C):	24
Relative Humidity Range (%):	43

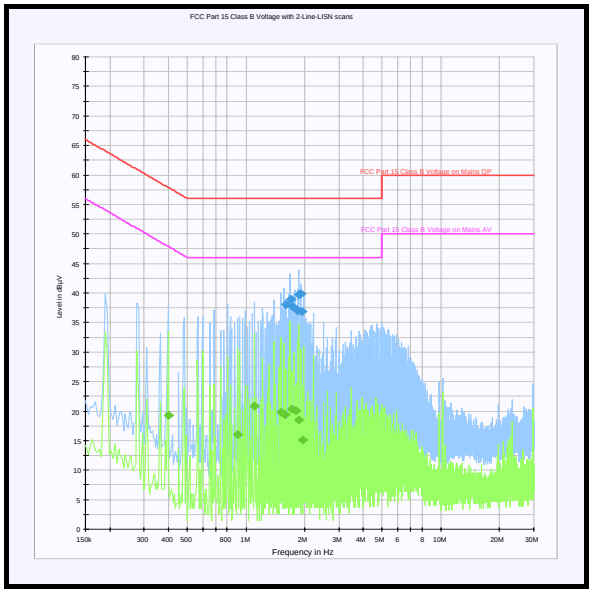
Results: Quasi Peak Detector Measurements

Frequency (MHz)	Line	Quasi Peak Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
1.608000	Neutral	38.0	56.0	18.0	Complied
1.702500	Neutral	39.0	56.0	17.0	Complied
1.747500	Live	37.6	56.0	18.4	Complied
1.837500	Live	36.9	56.0	19.1	Complied
1.860000	Neutral	39.8	56.0	16.2	Complied
1.914000	Live	39.8	56.0	16.2	Complied
1.936500	Neutral	36.9	56.0	19.1	Complied

Results: Average Detector Measurements

Frequency (MHz)	Line	Average Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.402000	Neutral	19.3	47.8	28.5	Complied
0.906000	Neutral	16.1	46.0	29.9	Complied
1.108500	Neutral	20.9	46.0	25.1	Complied
1.509000	Neutral	19.8	46.0	26.2	Complied
1.590000	Neutral	19.4	46.0	26.6	Complied
1.711500	Neutral	20.3	46.0	25.7	Complied
1.810500	Live	20.1	46.0	25.9	Complied
1.869000	Neutral	18.4	46.0	27.6	Complied
1.950000	Neutral	15.1	46.0	30.9	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)



Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.

5.4. Receiver/Idle Mode Radiated Spurious Emissions

Test Summary:

FCC Part:	15.109(a), 15.225(d)
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes
Frequency Range:	30 MHz to 1000 MHz
EUT Tested (IMEI):	004401220733253

Environmental Conditions:

Temperature Range (°C):	25
Relative Humidity Range (%):	30

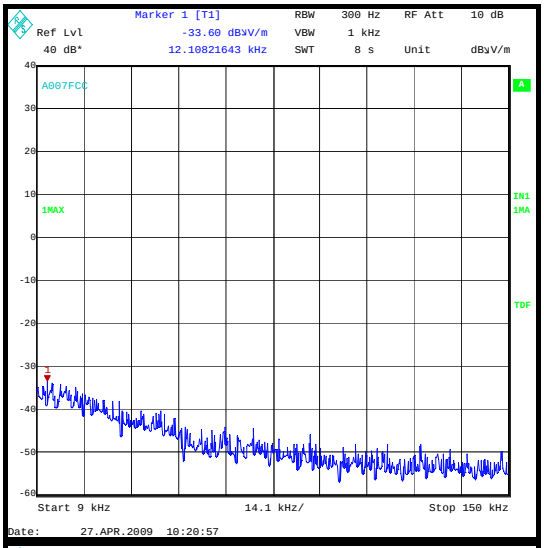
Results:

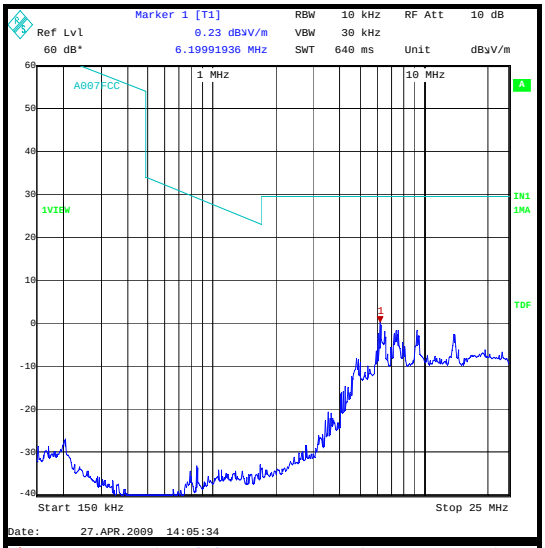
Frequency (MHz)	Antenna Polarity	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
957.234	Vertical	30.8	54.0	23.2	Complied

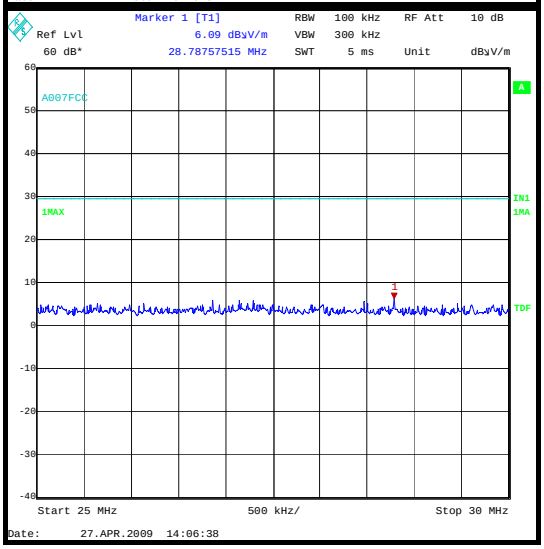
Note(s):

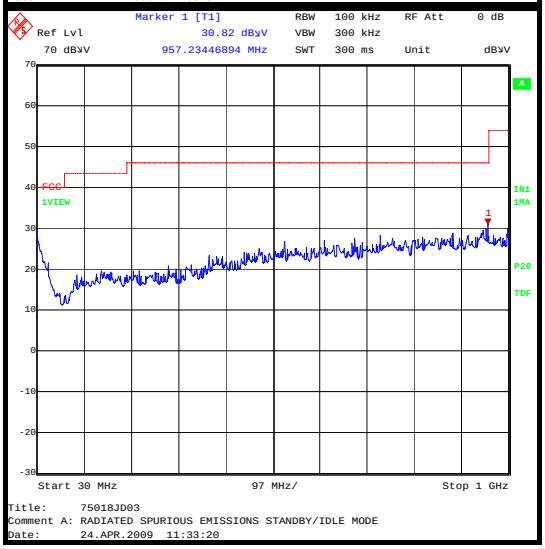
1. No spurious emissions were detected above the noise floor of the measuring receiver; therefore, the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above.
2. Limits below 30 MHz are specified at a test distance of 30 metres, whilst below 0.49 MHz they are specified at a test distance of 300 metres. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement distance by making the measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor.
3. A transducer factor on the measuring instrument was used to extrapolate the results at 3 metres to a distance of 30 metres where required.
4. All other emissions were >20 dB below the applicable limit or below the level of the noise floor.

Receiver/Idle Mode Radiated Spurious Emissions (continued)









Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying table.

5.5. Transmitter Fundamental Field Strength

Test Summary:

FCC Part:	15.225 (a)(b)(c)(d)
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes
EUT Tested (IMEI):	004401220733253

Environmental Conditions:

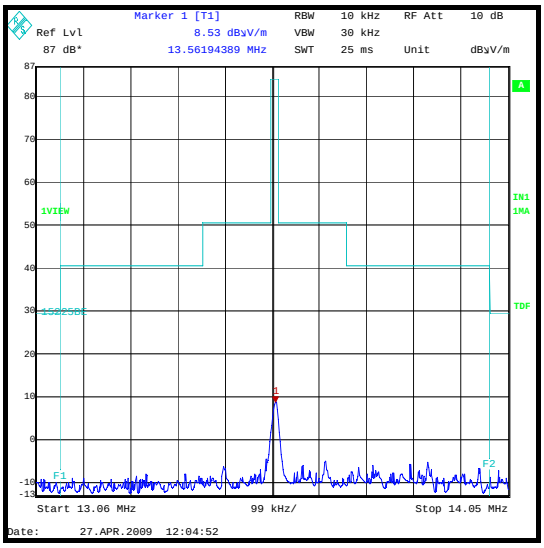
Temperature Range (°C):	23
Relative Humidity Range (%):	32

Results: Battery Powered Devices

Frequency (MHz)	Antenna Polarity	Q-P Level (dBµV/m)	Limit at 30 m (dBµV/m)	Margin (dB)	Result
13.56	90˚ to EUT	8.5	84.0	75.5	Complied

Note(s):

1. Measurements were performed at 3 metres and results extrapolated to 30 metres.
2. The limit is specified at a test distance of 30 metres. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement distance by making the measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor.



5.6. Transmitter Radiated Spurious Emissions

Test Summary:

FCC Part:	15.209 (a), 15.225(d)
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes
Frequency Range:	9 kHz to 1000 MHz
EUT Tested (IMEI):	004401220733253

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	30

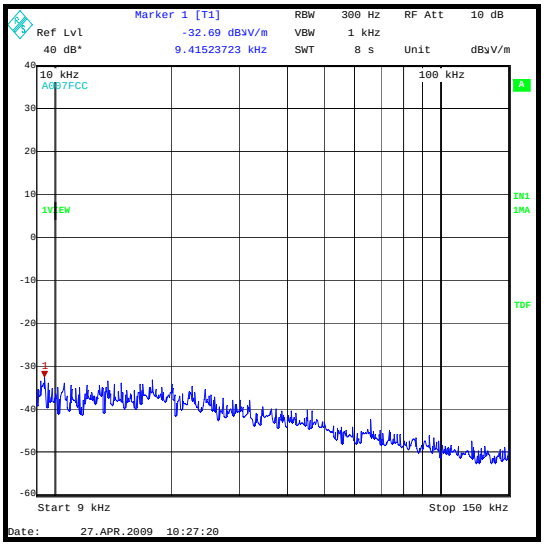
Results: Electric Field Strength Measurements

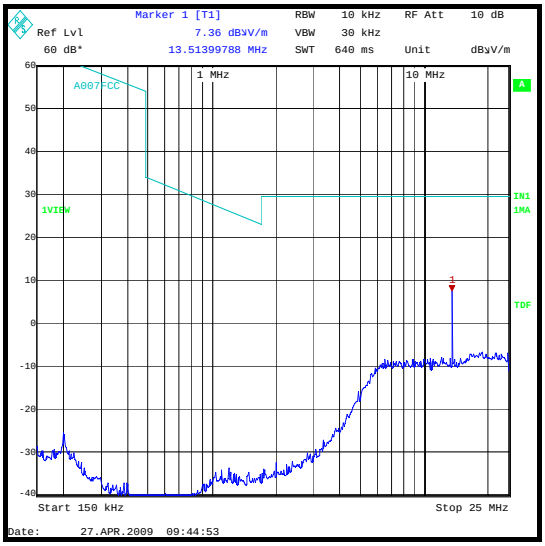
Frequency (MHz)	Antenna Polarity	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
92.290	Horizontal	24.2	43.0	18.8	Complied
107.587	Horizontal	25.6	43.0	17.4	Complied
176.266	Horizontal	27.6	43.0	15.4	Complied
461.017	Horizontal	33.9	46.0	12.1	Complied
501.699	Horizontal	35.6	46.0	10.4	Complied
542.361	Horizontal	38.0	46.0	8.0	Complied

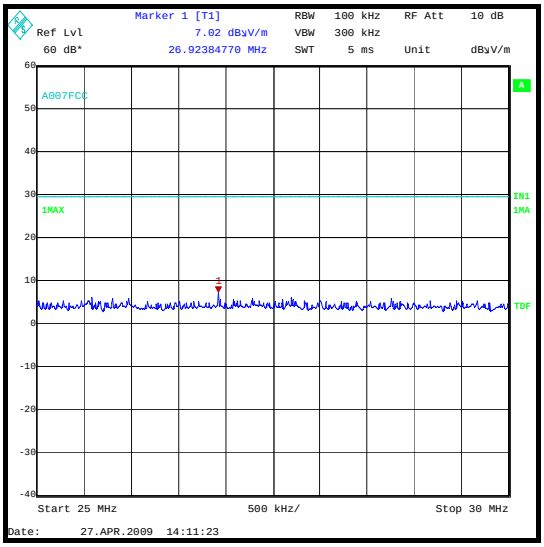
Note(s):

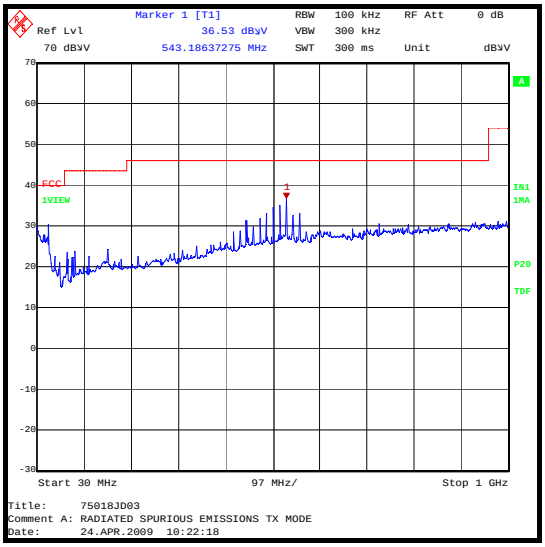
1. Limits below 30 MHz are specified at a test distance of 30 metres, whilst below 0.49 MHz they are specified at a test distance of 300 metres. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement distance by making the measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor.
2. A transducer factor on the measuring instrument was used to extrapolate the results at 3 metres to a distance of 30 metres where required.
3. The emission shown at approximately 13.5 MHz is the fundamental.

Transmitter Radiated Spurious Emissions (continued)









Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying table.

5.7. Transmitter Radiated Emissions at Band Edges

Test Summary:

FCC Part:	15.209(a) 15.225(c)(d)
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes
EUT Tested (IMEI):	004401220733253

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	33

Results: Lower Band Edge

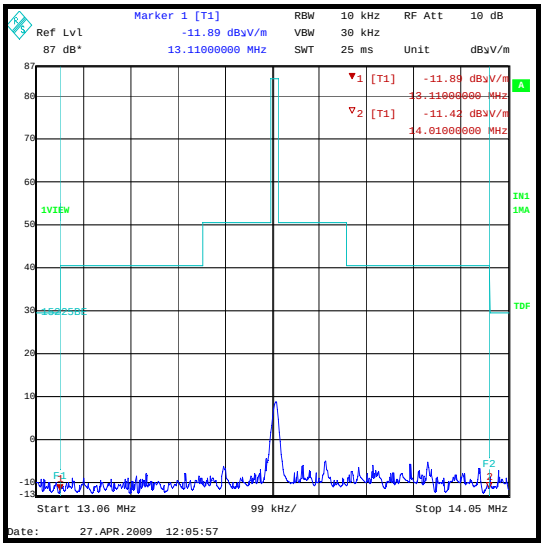
Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
13.11	-11.9	40.5	52.4	Complied

Results: Upper Band Edge

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
14.01	-11.4	40.5	51.9	Complied

Note(s):

1. Measurements were performed at 3 metres and results extrapolated to 30 metres.
2. A transducer factor on the measuring instrument was used to extrapolate the results at 3 metres to a distance of 30 metres where required.



5.8. Transmitter 20 dB Bandwidth

Test Summary:

FCC Part:	2.1049
Test Method Used:	As detailed in ANSI C63.4 Section 13.1.7 and relevant annexes (see note below)
EUT Tested (IMEI):	004401220733253

Environmental Conditions:

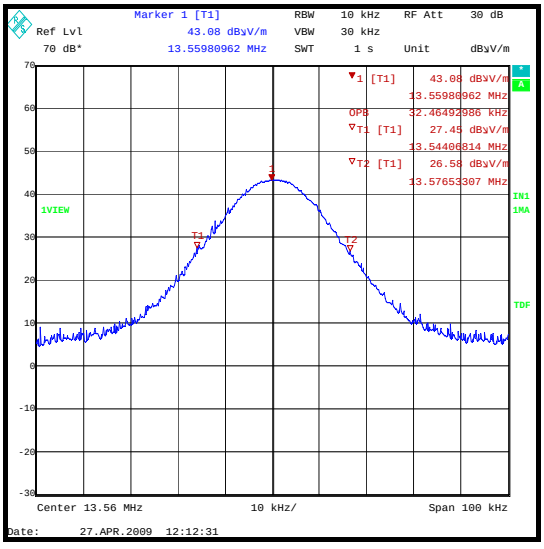
Temperature (°C):	23
Relative Humidity (%):	32

Results:

Transmitter 20 dB Bandwidth (kHz)
32.465

Note(s):

1. In lieu of the test method detailed in ANSI C63.4 Section13.1.7 the 20 dB bandwidth was measured using the Occupied Bandwidth function of the spectrum analyser.



5.9. Transmitter Frequency Stability (Temperature & Voltage Variation)

Test Summary:

FCC Part:	15.225 (e)
Test Method Used:	As detailed in ANSI C63.4 Section 13.1.6 and relevant annexes
EUT Tested (IMEI):	004401220733303

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	30

Results: Maximum frequency error of the EUT with variations in ambient temperature

Temp (°C)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Margin (%)	Result
-20	13.56	13.559985	15	0.000111	0.01	0.009889	Complied
20	13.56	13.559952	48	0.000354	0.01	0.009646	Complied
50	13.56	13.559886	114	0.000841	0.01	0.009159	Complied

Results: Maximum frequency error of the EUT with variations in nominal operating voltage at an ambient temperature of 20°C

Supply Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Margin (%)	Result
3.4	13.56	13.559949	51	0.000376	0.01	0.009624	Complied
3.7	13.56	13.559952	48	0.000354	0.01	0.009646	Complied
4.2	13.56	13.559943	57	0.000420	0.01	0.009580	Complied

6. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	±3.25 dB
Occupied Bandwidth	13 MHz to 14 MHz	95%	±0.92 ppm
Frequency Stability	13 MHz to 14 MHz	95%	±0.92 ppm
Radiated Spurious Emissions	9 kHz to 30 MHz	95%	±3.53 dB
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	±2.94 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
A007	Antenna	Rohde & Schwarz	HFH2-Z2	880 458/020	29 Mar 2009	12
A1299	Antenna	Schaffner	CBL6143	5094	28 Jul 2008	12
A1830	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100668	05 Jan 2009	12
A649	LISN	Rohde & Schwarz	ESH3-Z5	825562/008	19 Mar 2009	12
E013	Environmental Chamber	Sanyo	ATMOS chamber	None	Calibrated before use	12
K0001	5m SA Chamber	Rainford EMC	N/A	N/A	26 Aug 2008	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	26 Aug 2008	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESIB26	100046K	09 Mar 2009	12
M1229	Digital Multimeter	Fluke	179	87640015	09 May 2008	12
M1242	Spectrum Analyser	Rohde & Schwarz	FSEM30	845986/022	09 Dec 2008	12
M1273	Test Receiver	Rhode & Schwarz	ESIB 26	100275	01 Apr 2009	12
M1379	Test Receiver	Rohde & Schwarz	ESIB7	100330	14 Aug 2008	12
S0520	Power Supply Unit	GW instek	GPC-3030	E835141	Calibrated before use	-

NB In accordance with UKAS requirements. All the measurement equipment is on a calibration schedule.