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# Report On

FCC Testing of the  
McMurdo Ltd  
Z500 Family  
In accordance with FCC CFR 47 Part 80

COMMERCIAL-IN-CONFIDENCE

FCC ID: KLS-Z501

Document 75912801 Report 02 Issue 1

September 2011



Product Service

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COMMERCIAL-IN-CONFIDENCE

**REPORT ON**

FCC Testing of the  
McMurdo Ltd  
Z500 Family  
In accordance with FCC CFR 47 Part 80  
  
Document 75912801 Report 02 Issue 1  
  
September 2011

**PREPARED FOR**

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**APPROVED BY**

  
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Authorised Signatory

**DATED**

01 September 2011

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**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 80. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);



B. H. S.  
B. H. S.



M Russell  
M Russell





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## **SECTION 1**

### **REPORT SUMMARY**

FCC Testing of the  
McMurdo Ltd  
Z500 Family  
In accordance with FCC CFR 47 Part 80



## 1.1 INTRODUCTION

The information contained in this report is intended to show verification of the McMurdo Ltd Z500 Family to the requirements of FCC CFR 47 Part 80.

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	McMurdo Ltd
Model Number(s)	1 - Z501 2 - Z502
Serial Number(s)	1 - 970120005 2 - 970120033
Software Version	1.1.4
Hardware Version	Issue 1
Number of Samples Tested	One of each
Test Specification/Issue/Date	FCC CFR 47 Part 80: 2010
Disposal	Held Pending Disposal
Reference Number	Not Applicable
Date	Not Applicable
Order Number	PC0004399
Date	10 February 2011
Start of Test	18 May 2011
Finish of Test	21 June 2011
Name of Engineer(s)	M Russell B Airs
Related Document(s)	ANSI C63.4: 2003



## 1.2 BRIEF SUMMARY OF RESULTS

A brief summary of results in accordance with FCC CFR 47 Part 80, is shown below.

Section	Spec Clause	Test Description	Result	Comments
2.1	80.205	Occupied Bandwidth	Pass	
2.2	80.209	Frequency Stability Under Voltage Variations	Pass	
2.3	80.209	Frequency Stability Under Temperature Variations	Pass	
2.4	80.211(d)(1)(2)	Emission Limitations (Emission Mask)	Pass	
2.5	80.211(d)(2)	Emission Limitations (Conducted Transmitter Spurious)	Pass	
2.6	80.213	Transmitter Frequency Deviation	Pass	
2.7	80.215	Transmitter Power	Pass	



## 1.3 DECLARATION OF BUILD STATUS

MAIN EUT		
MANUFACTURING DESCRIPTION	OEM	
MANUFACTURER	McMurdo Ltd	
TYPE	Z501	
PART NUMBER	K98-001-001A	
SERIAL NUMBER	970 12 0005	
HARDWARE VERSION	Issue 1	
SOFTWARE VERSION	1.1.4	
TRANSMITTER OPERATING RANGE	161.975MHz to 162.025MHz	
RECEIVER OPERATING RANGE	Not applicable	
COUNTRY OF ORIGIN	United Kingdom	
INTERMEDIATE FREQUENCIES	Not applicable	
ITU DESIGNATION OF EMISSION	16K0F1DXN	
HIGHEST INTERNALLY GENERATED FREQUENCY	162.025MHz	
OUTPUT POWER (W or dBm)	0.72W ERP nominal	
FCC ID	KLS-Z501	
INDUSTRY CANADA ID	IC6913A-Z501	
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	Used as a personal AIS SART beacon, the Z501 has a unique ID code and will receive its position via an internal GPS module; this data is combined and transmitted using the international AIS channels (AIS 1 – 161.975MHz and AIS 2 – 162.025MHz) in the maritime VHF band.	
BATTERY/POWER SUPPLY		
MANUFACTURING DESCRIPTION	OEM	
MANUFACTURER	Varta microbattery (or Panasonic)	
TYPE	Lithium Manganese Dioxide	
PART NUMBER	Varta CR2/3AH Panasonic CR123A	
VOLTAGE	6v nominal	
COUNTRY OF ORIGIN	Germany (Varta micro battery ) or USA (Panasonic)	
ANCILLARIES (if applicable)		
MANUFACTURING DESCRIPTION	Webbing clip	Oral tube clip
MANUFACTURER	McMurdo	McMurdo
TYPE	-	-
PART NUMBER	98-202	98-203
SERIAL NUMBER	N/A	N/A
COUNTRY OF ORIGIN	United Kingdom	United Kingdom

Signature

Date

D of B S Serial No

Held on File

17 May 2011

970 12 0005

Note: This document has been prepared to enable manufacturers with no mechanism for producing their own Declaration of Build Status, to declare the build state of the equipment submitted for test.

No responsibility will be accepted by TÜV SÜD Product Service Ltd as to the accuracy of the information declared in this document by the manufacturer.



Product Service

## **1.4 PRODUCT INFORMATION**

### **1.4.1 Technical Description**

The Equipment Under Test (EUT) was an McMurdo Ltd Z500 Family.. A full technical description can be found in the Manufacturers documentation.

### **1.4.2 Test Configuration**

The EUT was configured in accordance with FCC CFR 47 Part 80.

### **1.4.3 Modes of Operation**

Modes of operation of each EUT during testing were as follows:

Mode 1 - Transmit





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## **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, test laboratories or an open test area as appropriate.

The EUT was powered from a 5.45V DC supply.

FCC Accreditation  
90987 Octagon House, Fareham Test Laboratory

## **1.6 DEVIATIONS FROM THE STANDARD**

No deviations from the applicable test standards or test plan were made during testing.

## **1.7 MODIFICATION RECORD**

No modifications were made to the EUT during testing.



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## **SECTION 2**

### **TEST DETAILS**

FCC Testing of the  
McMurdo Ltd  
Z500 Family  
In accordance with FCC CFR 47 Part 80



Product Service

## **2.1 FREQUENCY STABILITY UNDER VOLTAGE VARIATIONS**

### **2.1.1 Specification Reference**

FCC Part 80, Clause 80.209

### **2.1.2 Equipment Under Test**

Z500 Family (Z501), S/N:970120005

### **2.1.3 Date of Test and Modification State**

18 May 2011 - Modification State 0

### **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 Environmental Conditions**

	18 May 2011
Ambient Temperature	20.8°C
Relative Humidity	57.4%

### **2.1.6 Test Procedure**

Using a spectrum analyser, the frequency error was measured. The EUT was set to transmit on maximum power, in normal operating mode on both channels. The RBW and VBW were set appropriately to display the waveform. The voltage was varied to the minimum and maximum declared voltages and the frequency error was measured using the signal count function of the spectrum analyser.



### 2.1.7 Test Results

5.45 V DC Supply

Z501

Test Conditions		Frequency Error (kHz)	
		161.975 MHz	162.025 MHz
T <sub>nom</sub> (20.8°C)	V <sub>min</sub> (4.8 V DC)	0.23	0.31
	V <sub>nom</sub> (5.45 V DC)	0.25	0.31
	V <sub>max</sub> (6.0 V DC)	0.23	0.31
Maximum Frequency Error (Hz)		0.25	0.31
Measurement Uncertainty (Hz)		± 11	

### Limit Clause

The frequency error shall not exceed 10ppm /1.629 kHz



Product Service

## **2.2 FREQUENCY STABILITY UNDER TEMPERATURE VARIATIONS**

### **2.2.1 Specification Reference**

FCC Part 80, Clause 80.209 and 2.1055

### **2.2.2 Equipment Under Test**

Z500 Family (Z501), S/N:970120005

### **2.2.3 Date of Test and Modification State**

26 May 2011 - Modification State 0

### **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 Environmental Conditions**

	26 May 2011
Ambient Temperature	24.0°C
Relative Humidity	37.0%

### **2.2.6 Test Procedure**

Using a spectrum analyser, the frequency error was measured. The EUT was set to transmit on maximum power, in normal operating mode on both channels with the nominal voltage.. The RBW and VBW were set appropriately to display the waveform. The temperature was varied in 10°C intervals from -20°C to +55°C in accordance with 2.1055(2) and the frequency error was measured using the signal count function of the spectrum analyser.



## 2.2.7 Test Results

5.45 V DC Supply

Z501

Temperature Interval (°C)	Frequency Error (kHz)	
	161.975 MHz	162.025 MHz
-20	-0.043	-0.162
-15	-0.060	-0.159
-10	-0.070	-0.168
0	-0.122	-0.195
+10	-0.142	-0.247
+20	-0.154	-0.212
+30	-0.173	-0.229
+40	-0.179	-0.224
+50	-0.172	-0.264
+55	-0.164	-0.260
Maximum Frequency Error (Hz)	-0.179	-0.264
Measurement Uncertainty (Hz)	$\pm 11$	

### Limit Clause

The frequency error shall not exceed 10ppm /1.629 kHz



Product Service

**2.3 OCCUPIED BANDWIDTH****2.3.1 Specification Reference**

FCC Part 80, Clause 80.205

**2.3.2 Equipment Under Test**

Z500 Family (Z501), S/N:970120005

**2.3.3 Date of Test and Modification State**

20 May 2011 - Modification State 0

**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 Environmental Conditions**

	20 May 2011
Ambient Temperature	20.6°C
Relative Humidity	36.3%

**2.3.6 Test Procedure**

The EUT was connected to a spectrum analyser via a cable and attenuators. The EUT was configured to transmit at maximum power on both channels.

The trace was set to max hold until a sufficient number of sweeps was observed. The 99% occupied bandwidth function was selected on the spectrum analyser and the result and the trace were recorded.



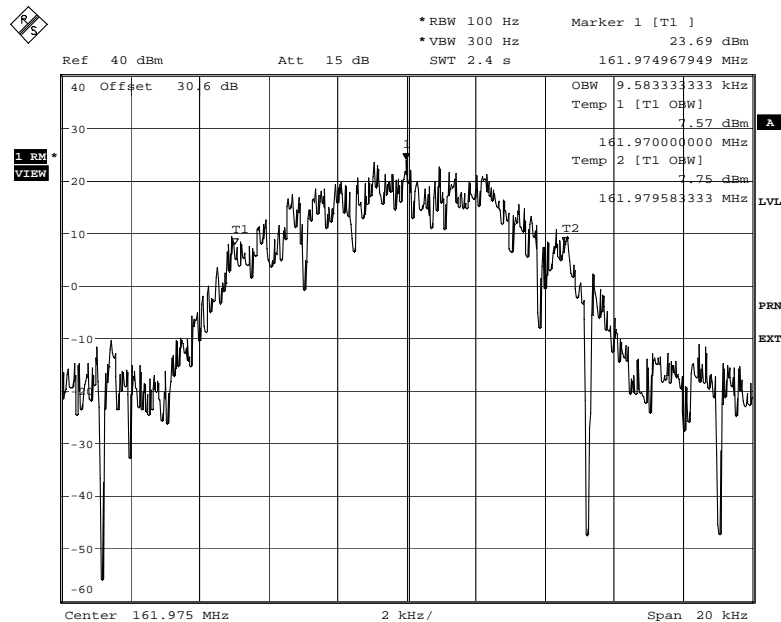
Product Service

### 2.3.7 Test Results

5.45 V DC Supply

Z501

Frequency	Result (kHz)	Authorised Bandwidth (kHz)
161.975 MHz	9.58	20
162.025 MHz	9.33	20

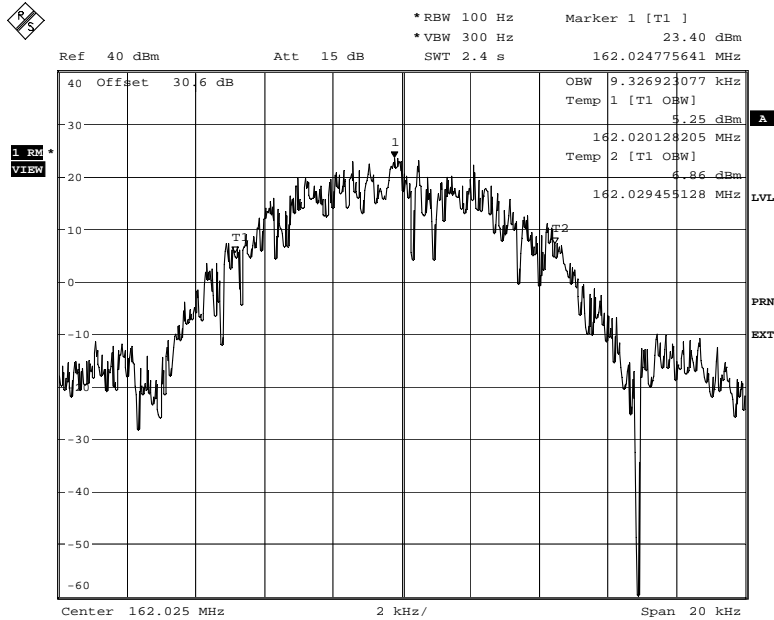
161.975 MHz

Date: 20.MAY.2011 10:34:16





Product Service

162.025 MHz

Date: 20.MAY.2011 10:39:35

Limit Clause

- (d) The nominal authorised channel bandwidth for voice is 20 kHz  
 (e) For data modulation, an authorised bandwidth of 16 kHz is permitted.



Product Service

**2.4 EMISSION LIMITATIONS (EMISSION MASK)****2.4.1 Specification Reference**

FCC CFR 47 Part 80, Clause 80.211(d)(1)(2)

**2.4.2 Equipment Under Test**

Z500 Family (Z501), S/N: 970120005  
Z500 Family (Z502), S/N: 970120033

**2.4.3 Date of Test and Modification State**

25 May 2011 - Modification State 0

**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**

The EUT was connected to a spectrum analyser via a 30dB attenuator. The RBW was set to 300Hz and VBW to 1kHz. The EUT was configured to transmit on both channels at maximum power. The reference level was set to the peak power and the mask was displayed on the spectrum analyser screen. The traces were recorded and are shown on the following pages.

**2.4.6 Environmental Conditions**

	25 May 2011
Ambient Temperature	25.0°C
Relative Humidity	29.0%

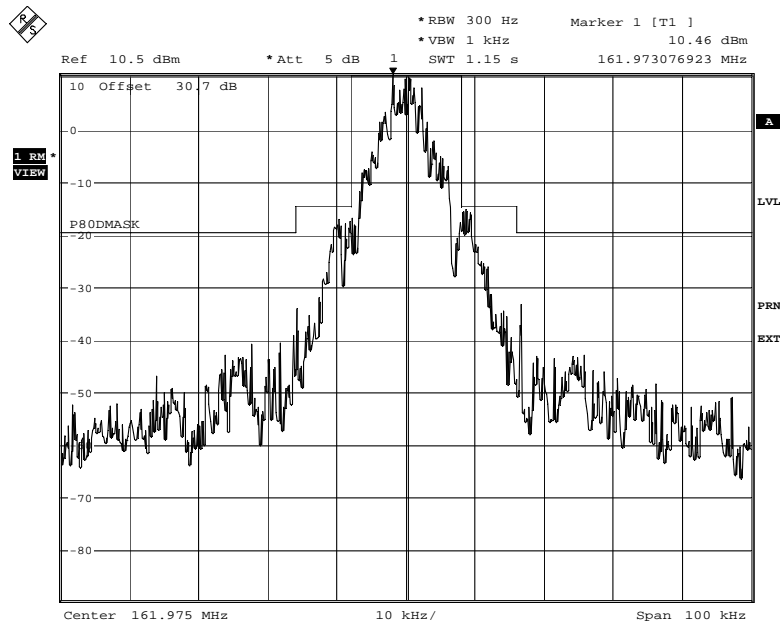


## 2.4.7 Test Results

5.45 V DC Supply

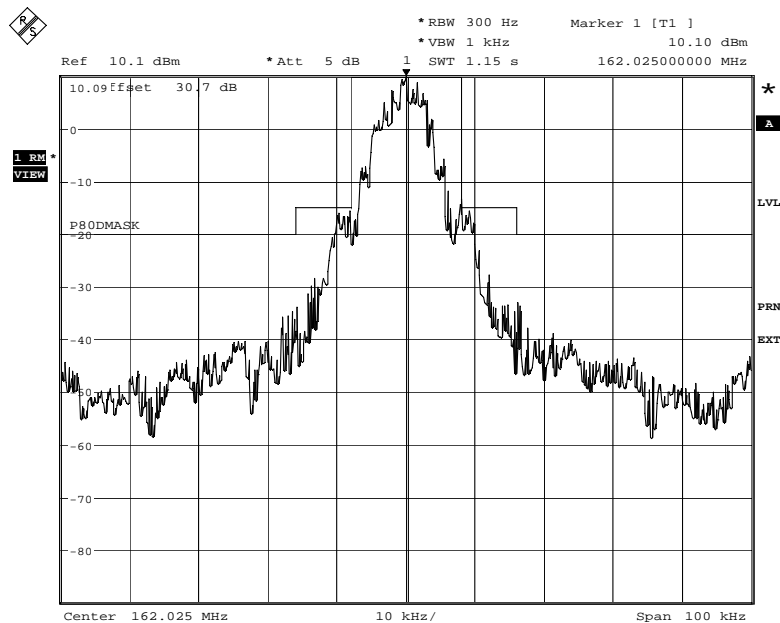
Z501

161.975 MHz

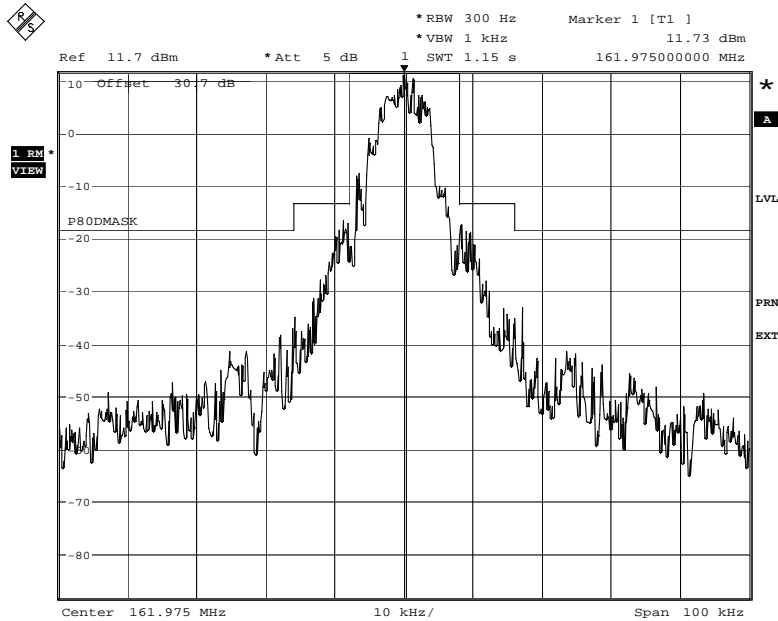


Date: 24.MAY.2011 13:02:29

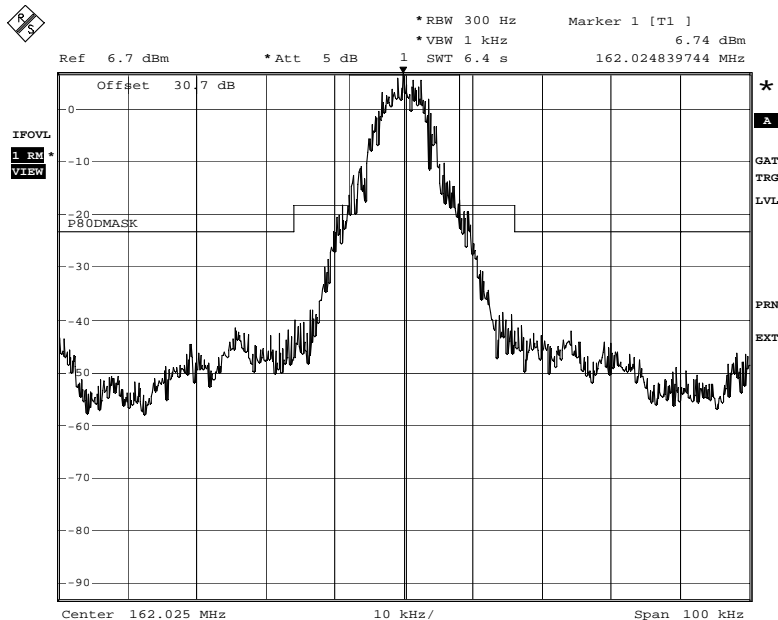
162.025 MHz



Date: 24.MAY.2011 17:03:18

Z502161.975 MHz

Date: 25.MAY.2011 10:16:34

162.025 MHz

Date: 25.MAY.2011 14:45:32

All the Emission Mask plots were performed with an authorised bandwidth of 16 kHz, hence the -25 dBc limit from 8 kHz. An authorised bandwidth of 20 kHz has been declared therefore the -25 dBc limit will move to 10 kHz. This will increase the pass/fail margin in every instance.



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Limit Clause

On any frequency removed from the assigned frequency by more than 50% up to including 100% of the authorised bandwidth: At least 25 dB.

On any frequency removed from the assigned frequency by more than 100% up to including 250% of the authorised bandwidth: At least 30 dB.



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## **2.5 EMISSION LIMITATIONS (CONDUCTED TRANSMITTER SPURIOUS)**

### **2.5.1 Specification Reference**

FCC CFR 47 Part 80, Clause 80.211(d)(2)

### **2.5.2 Equipment Under Test**

Z500 Family (Z501), S/N: 970120005  
Z500 Family (Z502), S/N: 970120033

### **2.5.3 Date of Test and Modification State**

24 and 31 May 2011 - Modification State 0

### **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**

Using a spectrum analyser, the emissions were measured between the range 9kHz and 2GHz. The path loss between the EUT and spectrum analyser was measured and the highest value of attenuation across the range was entered as a reference level offset. The EUT was set to transmit in normal operating mode on both channels at the same time. A display line of -30 dBc was shown, the trace was set to max hold and a peak detector used (worst case). The plots are shown on the following pages.

### **2.5.6 Environmental Conditions**

	24 May 2011	31 May 2011
Ambient Temperature	24.0°C	22.0°C
Relative Humidity	29.0%	32.0%



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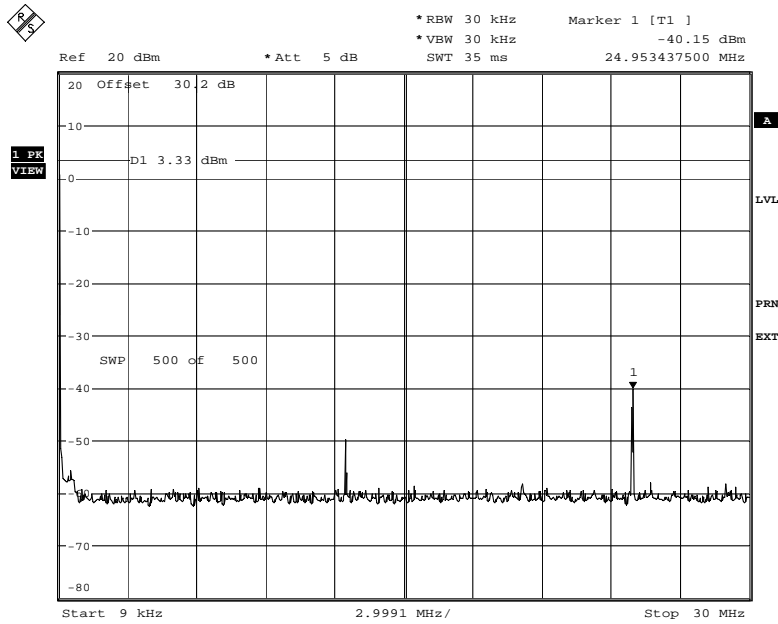
## 2.5.7 Test Results

5.45 V DC Supply

Z501

161.975 MHz

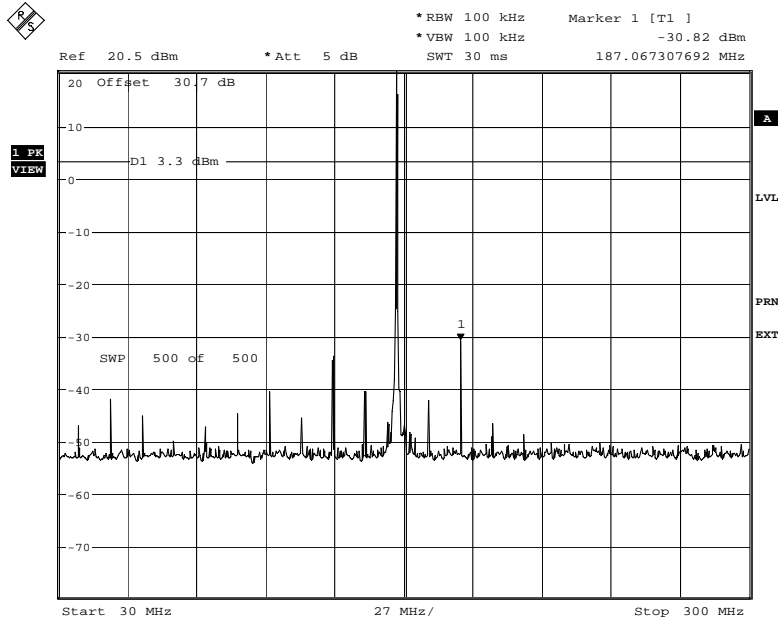
9 kHz to 30 MHz



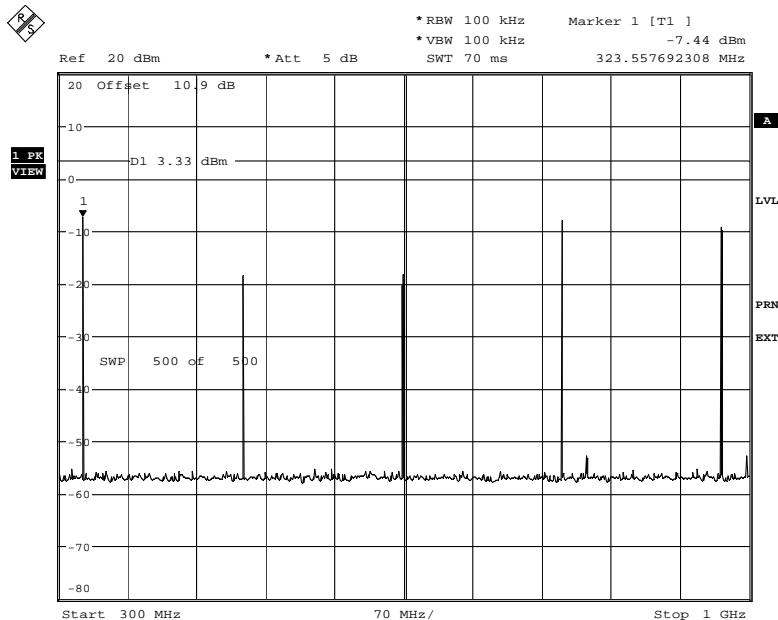
Date: 24.MAY.2011 10:52:59



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30 MHz to 300 MHz

Date: 24.MAY.2011 11:29:45

300 MHz to 1 GHz

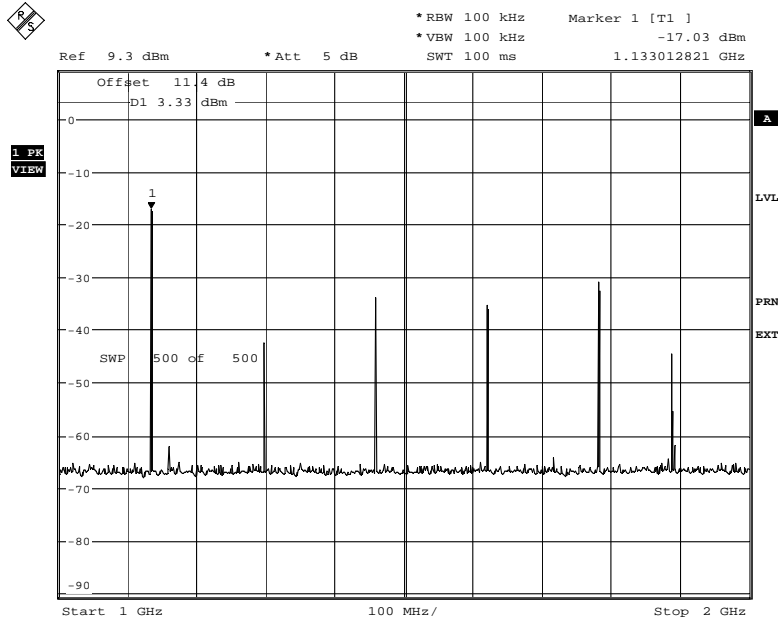
Date: 24.MAY.2011 12:09:29





Product Service

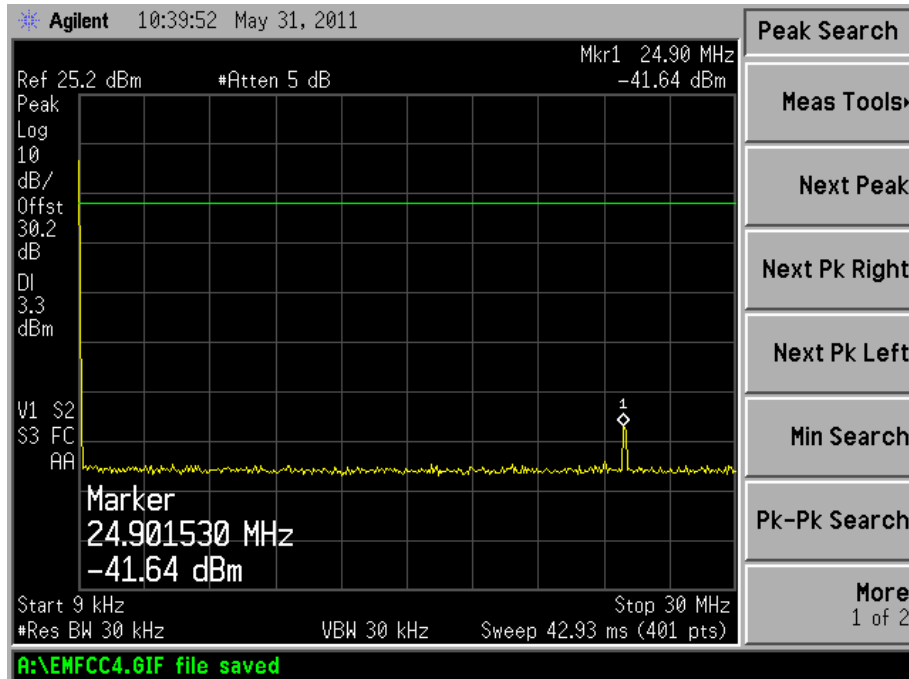
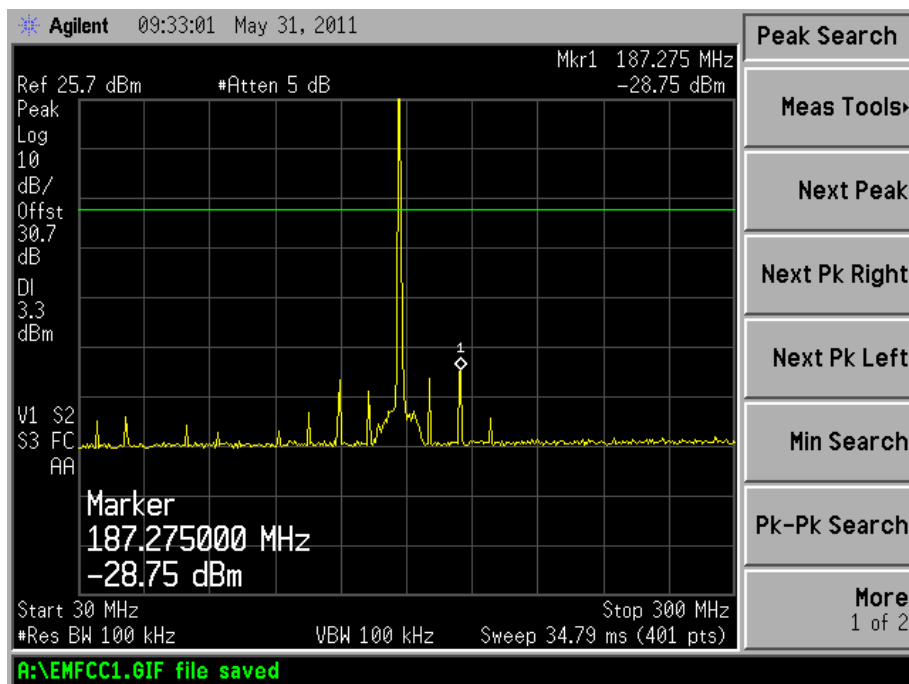
1 GHz to 2 GHz



Date: 24.MAY.2011 12:01:01

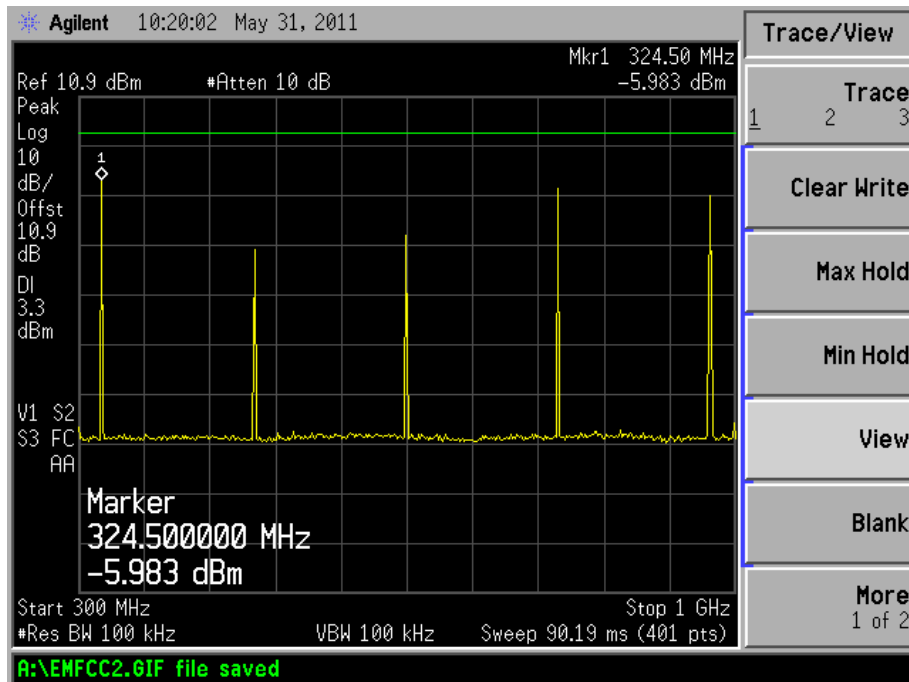
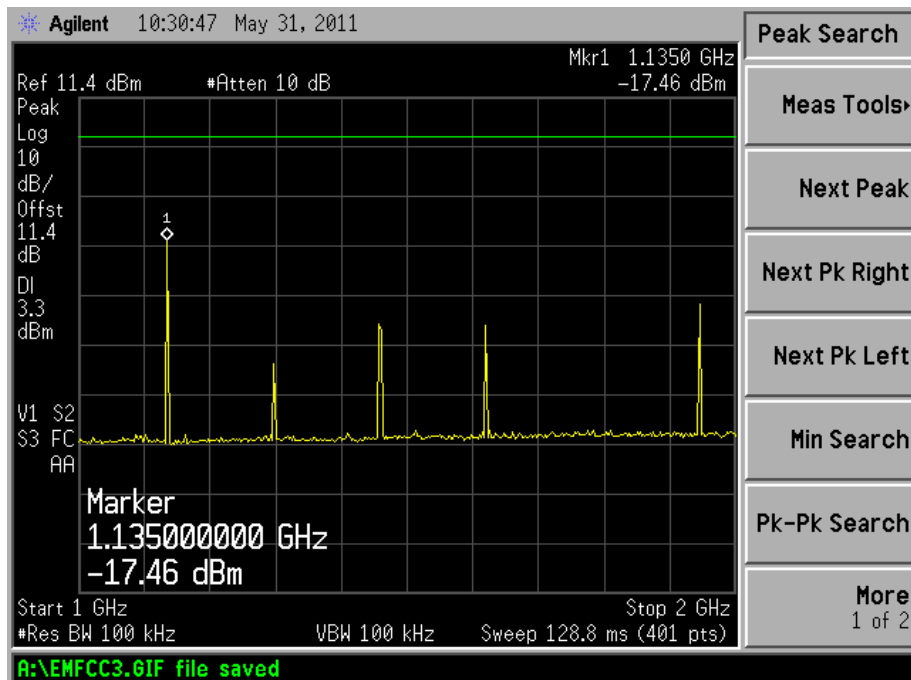


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Z502161.975 MHz9 kHz to 30 MHz30 MHz to 300 MHz



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300 MHz to 1 GHz1 GHz to 2 GHzLimit

On any frequency removed from the assigned frequency by more than 100% if the authorised bandwidth: at least 30dB.



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## **2.6 TRANSMITTER FREQUENCY DEVIATION**

### **2.6.1 Specification Reference**

FCC CFR 47 Part 80, Clause 80.213

### **2.6.2 Equipment Under Test**

Z500 Family (Z501), S/N: 970120005

### **2.6.3 Date of Test and Modification State**

21 June 2011 - Modification State 0

### **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**

Using a spectrum analyser, the frequency deviation was shown. The EUT was set to transmit in 3 operating modes with 3 different signal types. The plots are shown on the following pages.

### **2.6.6 Environmental Conditions**

	21 June 2011
Ambient Temperature	21.3°C
Relative Humidity	57.0%



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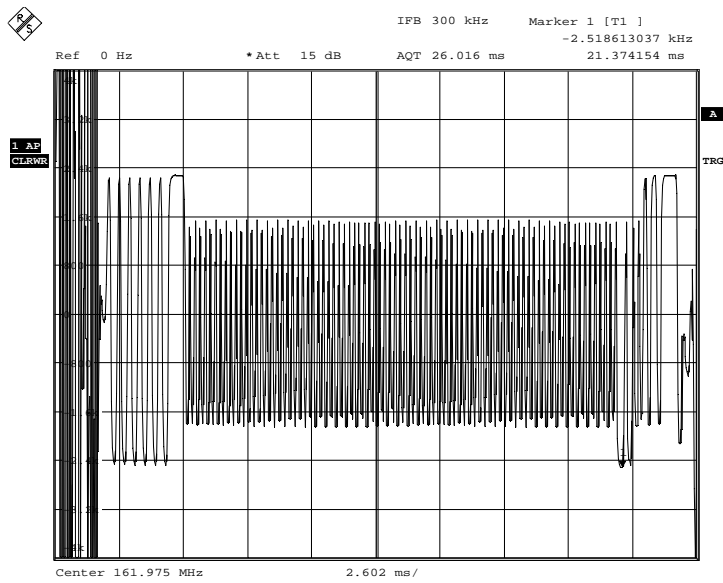
## 2.6.7 Test Results

5.45 V DC Supply

Z501

161.975 MHz

Signal 1: 01010101

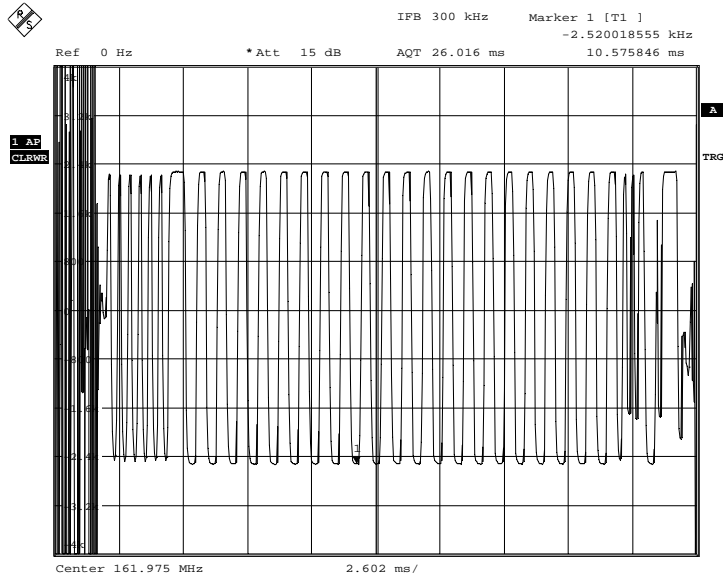


Date: 21.JUN.2011 10:21:17



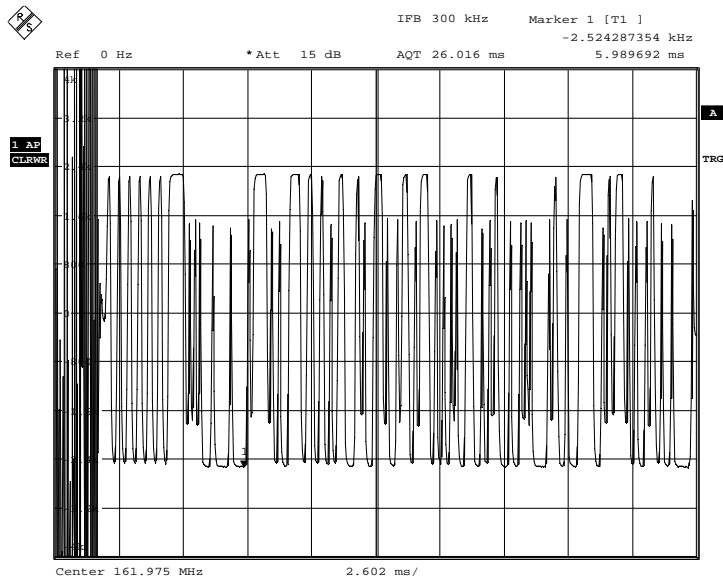
Product Service

Signal 2: 00001111



Date: 21.JUN.2011 10:28:13

Signal 3: Random Data



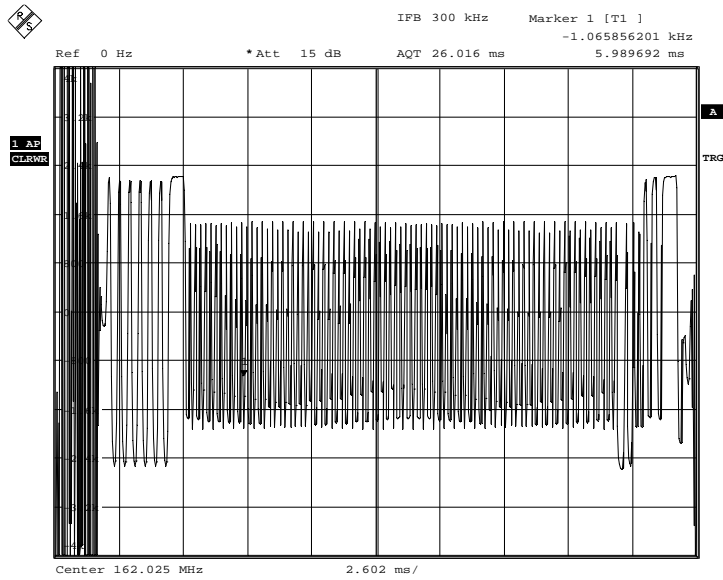
Date: 21.JUN.2011 10:30:27



Product Service

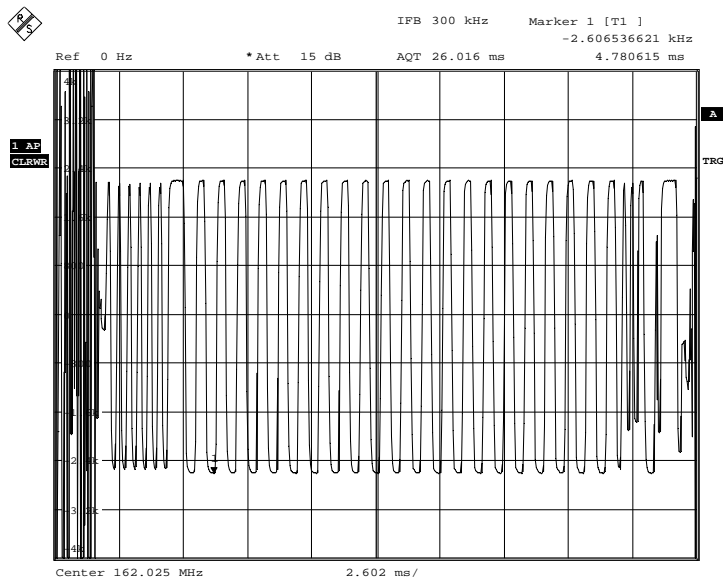
162.025 MHz

Signal 1: 01010101



Date: 21.JUN.2011 10:55:58

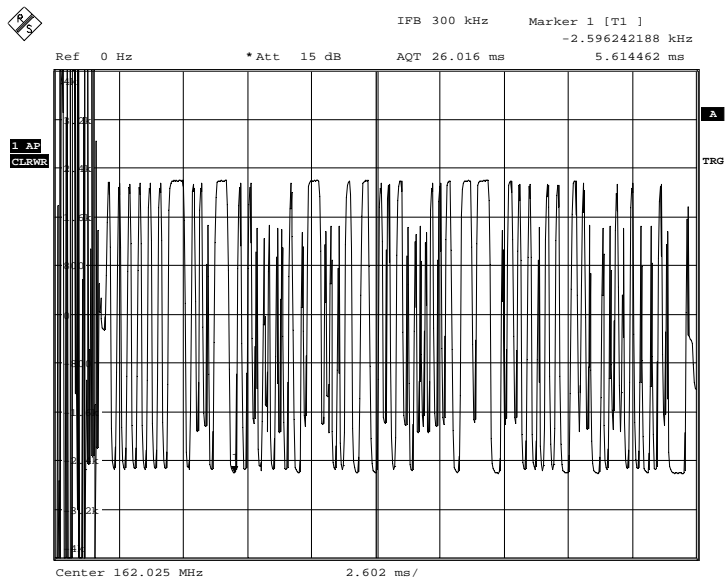
Signal 2: 00001111



Date: 21.JUN.2011 10:56:50



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Signal 3: Random Data

Date: 21.JUN.2011 10:58:36

Limit Clause

A frequency deviation that does not exceed  $\pm 5$  kHz





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**2.7 TRANSMITTER POWER****2.7.1 Specification Reference**

FCC CFR 47 Part 80, Clause 80.215

**2.7.2 Equipment Under Test**

Z500 Family (Z501), S/N: 970120005

**2.7.3 Date of Test and Modification State**

20 May 2011 - Modification State 0

**2.7.4 Test Equipment Used**

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

**2.7.5 Test Procedure**

Using a spectrum analyser, the peak output power was measured. The path loss between the EUT and spectrum analyser was measured and entered as a reference level offset. The EUT was set to transmit on both channels. The trace was set to max hold and a peak detector used.

**2.7.6 Environmental Conditions**

	20 May 2011
Ambient Temperature	21.3°C
Relative Humidity	38.5%



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**2.7.7 Test Results**

5.45 V DC Supply

Z501Maximum Power

Frequency (MHz)	Result (dBm)		Result (W)	
	Unmodulated	Modulated	Unmodulated	Modulated
161.975	33.48	32.33	2.228	1.710
162.025	33.49	32.40	2.234	1.738

Limit Clause

Marine utility stations and handheld portable transmitters: 156.000 to 162.000 MHz = 10W



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## **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
<b>Section 2.1- Occupied Bandwidth</b>					
Signal Generator	Marconi	2031	53	12	28-Feb-2012
Multimeter	White Gold	WG022	190	12	26-Oct-2011
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	11-Sep-2011
Power Supply	Iso-tech	IPS 2010	2439	-	O/P Mon
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	12-Nov-2011
Hygrometer	Rotronic	I-1000	2891	12	3-May-2012
Attenuator (30dB, 150W)	Narda	769-30	3369	12	24-May-2011
<b>Section 2.2 - Frequency Stability under Voltage Variations</b>					
Counter	Hewlett Packard	53181A	159	12	25-May-2011
Multimeter	White Gold	WG022	190	12	26-Oct-2011
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	11-Sep-2011
Power Supply	Iso-tech	IPS 2010	2439	-	O/P Mon
Hygrometer	Rotronic	I-1000	2891	12	3-May-2012
Attenuator (30dB, 150W)	Narda	769-30	3369	12	24-May-2011
<b>Section 2.3 – Frequency Stability Under Temperature Variations</b>					
Counter	Hewlett Packard	53181A	159	12	26-May-2012
Climatic Chamber	Votsch	VT4002	161	-	O/P Mon
Multimeter	White Gold	WG022	190	12	26-Oct-2011
Attenuator (30dB, 50W)	Bird	8321	494	12	22-Mar-2012
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	11-Sep-2011
Multimeter	Iso-tech	IDM101	2424	12	3-Sep-2011
Power Supply	Iso-tech	IPS 2010	2439	-	O/P Mon
Hygrometer	Rotronic	I-1000	2891	12	3-May-2012
Attenuator (30dB/50W)	Aeroflex / Weinschel	47-30-34	3164	12	1-Dec-2011
Thermocouple Thermometer	Fluke	51	3172	12	12-Jul-2011
Signal Analyser	Rohde & Schwarz	FSQ 26	3545	12	23-Feb-2012
<b>Section 2.4 - Emission Limitations (Emission Mask)</b>					
Signal Generator	Marconi	2031	53	12	28-Feb-2012
Multimeter	White Gold	WG022	190	12	26-Oct-2011
Attenuator (30dB, 50W)	Bird	8321	494	12	22-Mar-2012
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	11-Sep-2011
Power Supply	Iso-tech	IPS 2010	2439	-	O/P Mon
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	12-Nov-2011
Hygrometer	Rotronic	I-1000	2891	12	3-May-2012
Attenuator (30dB, 150W)	Narda	769-30	3369	12	24-May-2011
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	8-Feb-2012
<b>Section 2.5 – Emission Limitations (Conducted Transmitter Spurious)</b>					
Signal Generator	Marconi	2031	53	12	28-Feb-2012
Multimeter	White Gold	WG022	190	12	26-Oct-2011
Attenuator (30dB, 50W)	Bird	8321	494	12	22-Mar-2012
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	11-Sep-2011
Attenuator (10dB, 10W)	Trilithic	HFP-50N	1377	12	13-Oct-2011
High Pass Filter	Mini-Circuits	NHP-300	1640	12	12-Aug-2011
Power Supply	Iso-tech	IPS 2010	2439	-	O/P Mon
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	12-Nov-2011
Hygrometer	Rotronic	I-1000	2891	12	3-May-2012
ESA-E Series Spectrum Analyser	Agilent	E4402B	3348	12	2-Jun-2011
Attenuator (30dB, 150W)	Narda	769-30	3369	12	24-May-2011
Tunable Notch Filter	Wainwright	WRCD 130.0/170.0-0.05/50-5EEK	3412	-	TU
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	8-Feb-2012



Product Service

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
<b>Section 2.6 - Frequency Characteristics</b>					
Counter	Hewlett Packard	53181A	159	12	26-May-2012
Climatic Chamber	Votsch	VT4002	161	-	O/P Mon
Multimeter	White Gold	WG022	190	12	26-Oct-2011
Attenuator (30dB, 50W)	Bird	8321	494	12	22-Mar-2012
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	11-Sep-2011
Multimeter	Iso-tech	IDM101	2424	12	3-Sep-2011
Power Supply	Iso-tech	IPS 2010	2439	-	O/P Mon
Hygrometer	Rotronic	I-1000	2891	12	3-May-2012
Attenuator (30dB/50W)	Aeroflex / Weinschel	47-30-34	3164	12	1-Dec-2011
Thermocouple Thermometer	Fluke	51	3172	12	12-Jul-2011
Signal Analyser	Rohde & Schwarz	FSQ 26	3545	12	23-Feb-2012
<b>Section 2.7 – Transmitter Power</b>					
Signal Generator	Marconi	2031	53	12	28-Feb-2012
Multimeter	White Gold	WG022	190	12	26-Oct-2011
GPS Frequency Standard	Rapco	GPS-804/3	1312	6	11-Sep-2011
Power Supply	Iso-tech	IPS 2010	2439	-	O/P Mon
Spectrum Analyser	Rohde & Schwarz	FSU26	2747	12	12-Nov-2011
Hygrometer	Rotronic	I-1000	2891	12	3-May-2012
Attenuator (30dB, 150W)	Narda	769-30	3369	12	24-May-2011

TU – Traceability Unscheduled

OP Mon – Output Monitored using Calibrated Equipment



### 3.2 MEASUREMENT UNCERTAINTY

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

Test Discipline	Frequency / Parameter	MU
Radiated Emissions, Bilog Antenna, AOATS	30MHz to 1GHz Amplitude	5.1dB*
Radiated Emissions, Horn Antenna, AOATS	1GHz to 40GHz Amplitude	6.3dB*
Conducted Emissions, LISN	150kHz to 30MHz Amplitude	3.2dB*
Conducted Emissions, ISN	150kHz to 30MHz Amplitude	2.1dB
Substitution Antenna, Radiated Field	30MHz to 18GHz Amplitude	2.6dB
Discontinuous Interference	150kHz to 30MHz Amplitude	3.0dB*
Interference Power	30MHz to 300MHz Amplitude	3.0dB*
Radiated E-Field Susceptibility	26MHz to 2.5GHz Test Amplitude	1.4dB†
Conducted Susceptibility	100kHz to 250MHz Amplitude	1.8dB†
DC Input Ripple Immunity	Current Voltage	0.45% 0.91%
Power Frequency Magnetic Field	50Hz/60Hz Amplitude	0.45%
Magnetic Emissions	9kHz to 30MHz Amplitude	3.4dB*
Magnetic Field/Flux iaw EN 50366	10Hz to 400kHz	2.64%
Harmonics and Flicker	The test was applied using proprietary equipment that meets the requirements of EN 61000-3-2 and EN 61000-3-3	—
Mains Voltage Variations and Interrupts	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-11	—
Fast Transient Burst	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-4	—
Electrostatic Discharge	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-2	—
Surge	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-5	—
Vehicle Transients	The test was applied using proprietary equipment that meets the requirements of ISO 7637-1 and 2	—
Compass Safe Distance	Azimuth Accuracy	0.10°

Worst case error for both Time and Frequency measurement 12 parts in 10<sup>6</sup>.

\* In accordance with CISPR 16-4

† In accordance with UKAS Lab 34



Product Service

## **SECTION 4**

### **ACCREDITATION, DISCLAIMERS AND COPYRIGHT**



Product Service

#### 4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA  
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