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Electromagnetic Emissions Test Report and Application for Grant of Equipment Authorization pursuant to Industry Canada RSS-Gen Issue 2 / RSS 210 Issue 7 FCC Part 15 Subpart E on the OQO Transmitter Model 02

UPN:	6026A-A9YWFS
FCC ID:	SHD-A8YWFS
GRANTEE:	OQO 583 Shotwell St. San Francisco, CA 94110
TEST SITE:	Elliott Laboratories, Inc. 684 W. Maude Ave Sunnyvale, CA 94086
REPORT DATE:	December 19, 2007
FINAL TEST DATE:	June 18, June 19, June 20, June 22, June 25, July 16 and July 24, 2007

AUTHORIZED SIGNATORY: _____

Mark E. Hill
Staff Engineer

A2LA ACCREDITED
2016-01

REVISION HISTORY

Revision #	Date	Comments	Modified By
1	January 31, 2008	Initial Release	David Guidotti

TABLE OF CONTENTS

TABLE OF CONTENTS

SCOPE

An electromagnetic emissions test has been performed on the OQO Model 02 pursuant to the following rules:

> Industry Canada RSS-Gen Issue 2
> RSS 210 Issue 7 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"
> FCC Part 15, Subpart E requirements for UNII Devices (using FCC DA 02-2138, August 30, 2002)

Conducted and radiated emissions data has been collected, reduced, and analyzed within this report in accordance with measurement guidelines set forth in the following reference standards and as outlined in Elliott Laboratories test procedures:

> ANSI C63.4:2003

The intentional radiator above has been tested in a simulated typical installation to demonstrate compliance with the relevant Industry Canada performance and procedural standards.

Final system data was gathered in a mode that tended to maximize emissions by varying orientation of EUT, orientation of power and I/O cabling, antenna search height, and antenna polarization.

Every practical effort was made to perform an impartial test using appropriate test equipment of known calibration. All pertinent factors have been applied to reach the determination of compliance.

The test results recorded herein are based on a single type test of the OQO Model 02 and therefore apply only to the tested sample. The sample was selected and prepared by Bob Hymes of OQO.

OBJECTIVE

The primary objective of the manufacturer is compliance with the regulations outlined in the previous section.

Prior to marketing in the USA, all unlicensed transmitters and transceivers require certification. Receive-only devices operating between 30 MHz and 960 MHz are subject to either certification or a manufacturer's declaration of conformity, with all other receive-only devices exempt from the technical requirements.

Prior to marketing in Canada, Class I transmitters, receivers and transceivers require certification. Class II devices are required to meet the appropriate technical requirements but are exempt from certification requirements.

Certification is a procedure where the manufacturer submits test data and technical information to a certification body and receives a certificate or grant of equipment authorization upon successful completion of the certification body's review of the submitted documents. Once the equipment authorization has been obtained, the label indicating compliance must be attached to all identical units, which are subsequently manufactured.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product which may result in increased emissions should be checked to ensure compliance has been maintained (i.e., printed circuit board layout changes, different line filter, different power supply, harnessing or I/O cable changes, etc.).

STATEMENT OF COMPLIANCE

The tested sample of OQO Model 02 complied with the requirements of the following regulations:

Industry Canada RSS-Gen Issue 2
RSS 210 Issue 7 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"
FCC Part 15, Subpart E requirements for UNII Devices

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product which may result in increased emissions should be checked to ensure compliance has been maintained (i.e., printed circuit board layout changes, different line filter, different power supply, harnessing or I/O cable changes, etc.).

TEST RESULTS SUMMARY

Operation in the 5.47 – 5.725 GHz Band

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.407(a) (2)		26dB Bandwidth	28.9 MHz	N/A – limits output power if < 20MHz	N/A
15.407(a) (2)	A9.2(2)	Output Power	19.8 dBm (0.096 W)	24 dBm / 250mW (eirp < 30dBm)	Complies
15.407(a) (2))		Power Spectral Density	8.5 dBm/MHz	11 dBm/MHz	Complies
	A9.2(2) / A9.5 (2)	Power Spectral Density		9.4 dBm / MHz[1]	Complies
N/A	A9.4	Non-operation in 5600 – 5650 MHz sub band	Device cannot operate in the 5600 – 5650 MHz band –refer to Operational Description		Complies

General requirements for all bands

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
	A9.5a	Modulation	Digital Modulation is used (OFDM)	Digital modulation is required	Complies
	RSP 100	99% bandwidth	17.8 MHz	Information only	
15.407(b) (5) / 15.209	A9.3	Spurious Emissions below 1GHz	None		Complies
15.407(b) (2)	A9.3	Spurious Emissions above 1GHz		53.2dBµV/m (457.1µV/m) @ 11197.7MHz	Complies (-0.8dB)
15.407(a)(6)	-	Peak Excursion Ratio	11.5 dB	< 13dB	Complies
	A9.5 (3)	Channel Selection	Spurious emissions tested at outermost channels in each band	Device was tested on the top, bottom and center channels in each band	N/A
15			Measurements on three channels in each band		N/A
15.407 (c)	A9.5(4)	Operation in the absence of information to transmit	Operation is discontinued in the absence of information (Operational Description)	Device shall automatically discontinue operation in the absence of information to transmit	Complies
15.407 (g)	A9.5 (5)	Frequency Stability	Frequency stability is better than 20ppm (Operational Description)		Complies
15.407 (h1)	A9.4	Transmit Power Control	TPC is not required as the device operates at below 500mW eirp	The U-NII device shall have the capability to operate with a mean EIRP value lower than 24dBm (250mW)	N/A

[1] Reduced from 11dBm because highest value exceeded the average value by more than 3dB

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.407 (h2)	A9.4	Dynamic frequency Selection (device without radar detection)	Refer to separate test report, reference Rxxxx	Channel move time < 10s Channel closing transmission time < 260ms	Note 1
	A9.5(7)	User Manual information	Refer to Exhibit 6 for details		Complies

Note 1: Compliance with DFS requirements was shown during original application.

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	Internal to device		Complies
15.109	RSS GEN 7.2.3 Table 1	Receiver spurious emissions	37.6dBµV/m (75.9µV/m) @ 11199.0MHz		Complies (-16.4dB)
15.207	RSS GEN Table 2	AC Conducted Emissions		Refer to standard	Note 1
15.247 (b) (5) 15.407 (f)	RSS 102	RF Exposure Requirements	Refer to SAR report and RSS 102 declaration	Refer to OET 65, FCC Part 1 and RSS 102	Complies
	RSP 100 RSS GEN 7.1.5	User Manual	Refer to Manual	Statement required regarding non-interference	
	RSP 100 RSS GEN 7.1.5	User Manual	Refer to Manual	Statement required regarding detachable antenna	

Note 1: AC conducted emissions data was presented during original application. No data is included with this permissive change.

MEASUREMENT UNCERTAINTIES

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level and were calculated in accordance with UKAS document LAB 34.

Measurement Type	Frequency Range (MHz)	Calculated Uncertainty (dB)
Conducted Emissions	0.15 to 30	± 2.4
Radiated Emissions	0.015 to 30	± 3.0
Radiated Emissions	30 to 1000	± 3.6
Radiated Emissions	1000 to 40000	± 6.0

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The OQO model 2050 is a Handheld PC. Since the EUT would be placed on a table top during operation, the EUT was treated as table-top equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 5Vdc, 3.5 Amps. It can be powered from an internal battery or external AC/DC adapter rated for operation from 100-240V, 50/60Hz, 0.5A.

The sample was received on June 18, 2007 and tested on June 18, June 19, June 20, June 22, June 25, July 16 and July 24, 2007. The EUT consisted of the following component(s):

Manufacturer	Model	Description	Serial Number	FCC ID
OQO	2060	Handheld PC with Bluetooth, WLAN and WWAN	112718003	SHD-A8YWFS

OTHER EUT DETAILS

Testing performed on the 2060 was considered representative of the 2042 and 2050. The 2060 model is capable of transmitting on both the WLAN and WWAN frequencies concurrently. The 2050 model is electrical identical to the 2060, but the software does not allow for concurrent transmission of the WLAN and WWAN. The model 2042 is identical to the model 2050 except that the Novatel EV-DO (WWAN) module has been removed.

ANTENNA SYSTEM

The EUT antenna is an internal flex.

ENCLOSURE

The EUT enclosure is primarily constructed of Metal and Plastic. It measures approximately 15 cm long by 5 cm Wide by 2 cm high.

MODIFICATIONS

The EUT did not require modifications during testing in order to comply with emissions specifications.

SUPPORT EQUIPMENT

The following equipment was used as local support equipment for emissions testing:

Manufacturer	Model	Description	Serial Number	FCC ID
Microsoft	Wheel Mouse Optical USB	Mouse	56180-523-0422391-1	DoC
Samsung	204B	Monitor	BR20HVFL400076K	DoC

No remote support equipment was used during emissions testing.

EUT INTERFACE PORTS

The I/O cabling configuration during emissions testing was as follows:

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Video	Monitor	15pin Dsub	Shielded	2.0
USB	Mouse	USB 4wire	Shielded	2.0
Video	Monitor	15pin Dsub	Shielded	2.0
AC Power	AC Mains	2 wire	unshielded	2.0
DC Power	Docking station	2 wire	-	-

EUT OPERATION

During testing the EUT was configured to continuously transmit on the desired channel, at the selected power level.

TEST SITE

GENERAL INFORMATION

Final test measurements were taken on June 18, June 19, June 20, June 22, June 25, July 16 and July 24, 2007 at the Elliott Laboratories Open Area Test Site #2 or semi anechoic chamber #2 located at 684 West Maude Avenue, Sunnyvale, California or 41039 Boyce Road, Fremont, California Pursuant to section 2.948 of the FCC's Rules and section 3.3 of RSP-100, construction, calibration, and equipment data has been filed with the Commission.

ANSI C63.4:2003 recommends that ambient noise at the test site be at least 6 dB below the allowable limits. Ambient levels are below this requirement with the exception of predictable local TV, radio, and mobile communications traffic. The test site contains separate areas for radiated and conducted emissions testing. Considerable engineering effort has been expended to ensure that the facilities conform to all pertinent requirements of ANSI C63.4:2003.

CONDUCTED EMISSIONS CONSIDERATIONS

Conducted emissions testing is performed in conformance with ANSI C63.4:2003. Measurements are made with the EUT connected to the public power network through a nominal, standardized RF impedance, which is provided by a line impedance stabilization network, known as a LISN. A LISN is inserted in series with each current-carrying conductor in the EUT power cord.

RADIATED EMISSIONS CONSIDERATIONS

The FCC has determined that radiation measurements made in a shielded enclosure are not suitable for determining levels of radiated emissions. Radiated measurements are performed in an open field environment or in a semi-anechoic chamber. The test sites are maintained free of conductive objects within the CISPR defined elliptical area incorporated in ANSI C63.4:2003 guidelines and meet the Normalized Site Attenuation (NSA) requirements of ANSI C63.4:2003.

MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

An EMI receiver as specified in CISPR 16-1 is used for emissions measurements. The receivers used can measure over the frequency range of 9 kHz up to 2000 MHz. These receivers allow both ease of measurement and high accuracy to be achieved. The receivers have Peak, Average, and CISPR (Quasi-peak) detectors built into their design so no external adapters are necessary. The receiver automatically sets the required bandwidth for the CISPR detector used during measurements. If the repetition frequency of the signal being measured is below 20Hz, peak measurements are made in lieu of Quasi-Peak measurements.

For measurements above the frequency range of the receivers, a spectrum analyzer is utilized because it provides visibility of the entire spectrum along with the precision and versatility required to support engineering analysis. Average measurements above 1000MHz are performed on the spectrum analyzer using the linear-average method with a resolution bandwidth of 1 MHz and a video bandwidth of 10 Hz, unless the signal is pulsed in which case the average (or video) bandwidth of the measuring instrument is reduced to onset of pulse desensitization and then increased.

INSTRUMENT CONTROL COMPUTER

The receivers utilize either a Rohde & Schwarz EZM Spectrum Monitor/Controller or contain an internal Spectrum Monitor/Controller to view and convert the receiver measurements to the field strength at an antenna or voltage developed at the LISN measurement port, which is then compared directly with the appropriate specification limit. This provides faster, more accurate readings by performing the conversions described under Sample Calculations within the Test Procedures section of this report. Results are printed in a graphic and/or tabular format, as appropriate. A personal computer is used to record all measurements made with the receivers.

The Spectrum Monitor provides a visual display of the signal being measured. In addition, the controller or a personal computer run automated data collection programs which control the receivers. This provides added accuracy since all site correction factors, such as cable loss and antenna factors are added automatically.

LINE IMPEDANCE STABILIZATION NETWORK (LISN)

Line conducted measurements utilize a fifty microhenry Line Impedance Stabilization Network as the monitoring point. The LISN used also contains a 250 uH CISPR adapter. This network provides for calibrated radio frequency noise measurements by the design of the internal low pass and high pass filters on the EUT and measurement ports, respectively.

FILTERS/ATTENUATORS

External filters and precision attenuators are often connected between the receiving antenna or LISN and the receiver. This eliminates saturation effects and non-linear operation due to high amplitude transient events.

ANTENNAS

A loop antenna is used below 30 MHz. For the measurement range 30 MHz to 1000 MHz either a combination of a biconical antenna and a log periodic or a bi-log antenna is used. Above 1000 MHz, horn antennas are used. The antenna calibration factors to convert the received voltage to an electric field strength are included with appropriate cable loss and amplifier gain factors to determine an overall site factor, which is then programmed into the test receivers or incorporated into the test software.

ANTENNA MAST AND EQUIPMENT TURNTABLE

The antennas used to measure the radiated electric field strength are mounted on a non-conductive antenna mast equipped with a motor-drive to vary the antenna height. Measurements below 30 MHz are made with the loop antenna at a fixed height of 1m above the ground plane.

ANSI C63.4:2003 specifies that the test height above ground for table mounted devices shall be 80 centimeters. Floor mounted equipment shall be placed on the ground plane if the device is normally used on a conductive floor or separated from the ground plane by insulating material from 3 to 12 mm if the device is normally used on a non-conductive floor. During radiated measurements, the EUT is positioned on a motorized turntable in conformance with this requirement.

INSTRUMENT CALIBRATION

All test equipment is regularly checked to ensure that performance is maintained in accordance with the manufacturer's specifications. All antennas are calibrated at regular intervals with respect to tuned half-wave dipoles. An exhibit of this report contains the list of test equipment used and calibration information.

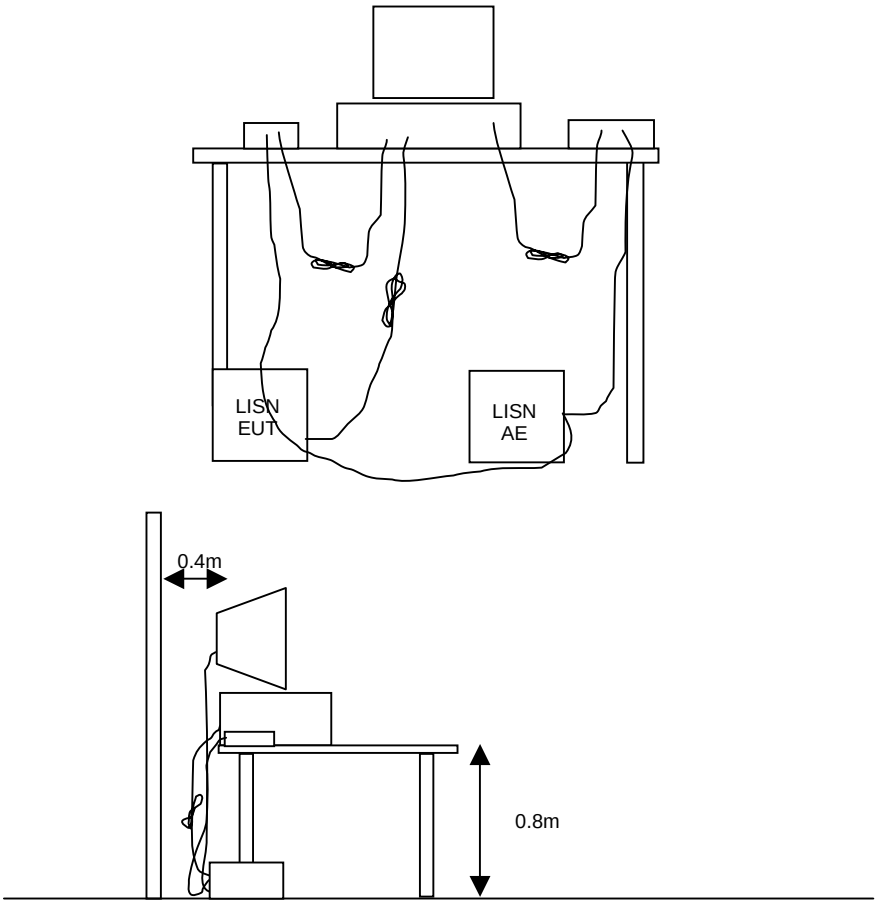
TEST PROCEDURES

EUT AND CABLE PLACEMENT

The regulations require that interconnecting cables be connected to the available ports of the unit and that the placement of the unit and the attached cables simulate the worst case orientation that can be expected from a typical installation, so far as practicable. To this end, the position of the unit and associated cabling is varied within the guidelines of ANSI C63.4:2003, and the worst-case orientation is used for final measurements.

CONDUCTED EMISSIONS

Conducted emissions are measured at the plug end of the power cord supplied with the EUT. Excess power cord length is wrapped in a bundle between 30 and 40 centimeters in length near the center of the cord. Preliminary measurements are made to determine the highest amplitude emission relative to the specification limit for all the modes of operation. Placement of system components and varying of cable positions are performed in each mode. A final peak mode scan is then performed in the position and mode for which the highest emission was noted on all current carrying conductors of the power cord.

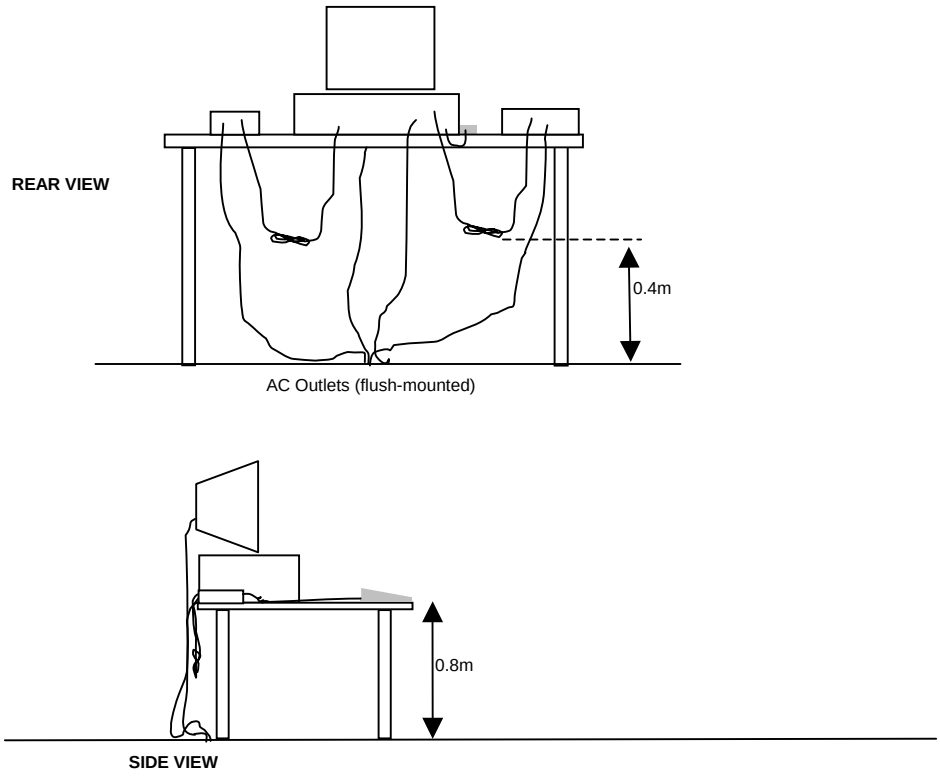


A preliminary scan of the radiated emissions is performed in which all significant EUT frequencies are identified with the system in a nominal configuration. At least two scans are performed, one scan for each antenna polarization (horizontal and vertical; loop parallel and perpendicular to the EUT). During the preliminary scans, the EUT is rotated through 360˚, the antenna height is varied (for measurements above 30 MHz) and cable positions are varied to determine the highest emission relative to the limit. Preliminary scans may be performed in a fully anechoic chamber for the purposes of identifying the frequencies of the highest emissions from the EUT.

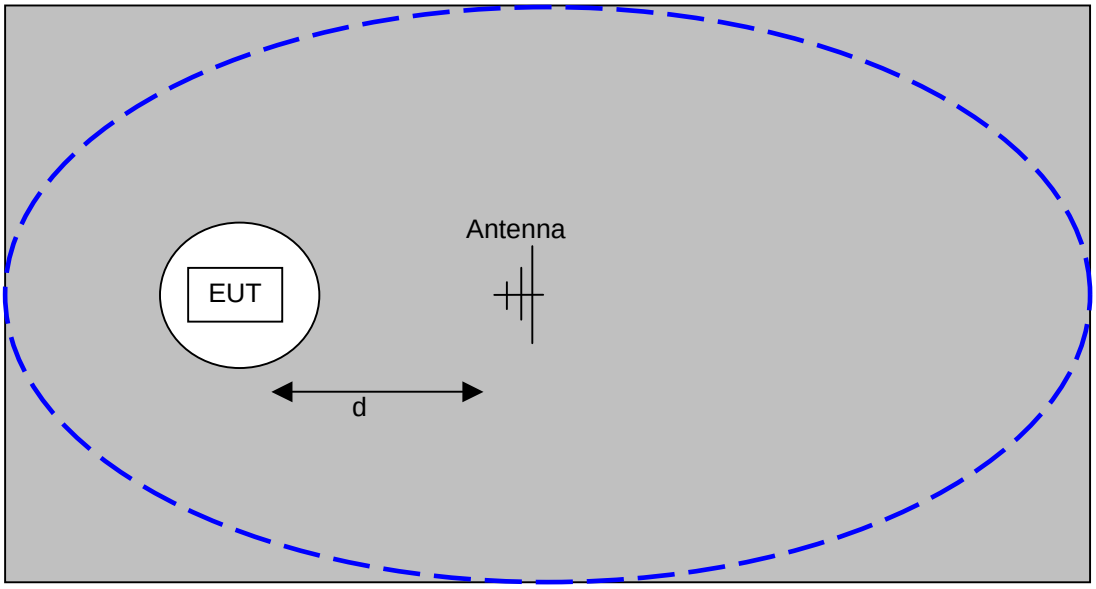
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

Final maximization is a phase in which the highest amplitude emissions identified in the spectral search are viewed while the EUT azimuth angle is varied from 0 to 360 degrees relative to the receiving antenna. The azimuth, which results in the highest emission is then maintained while varying the antenna height from one to four meters (for measurements above 30 MHz, measurements below 30 MHz are made with the loop antenna at a fixed height of 1m). The result is the identification of the highest amplitude for each of the highest peaks. Each recorded level is corrected in the receiver using appropriate factors for cables, connectors, antennas, and preamplifier gain.

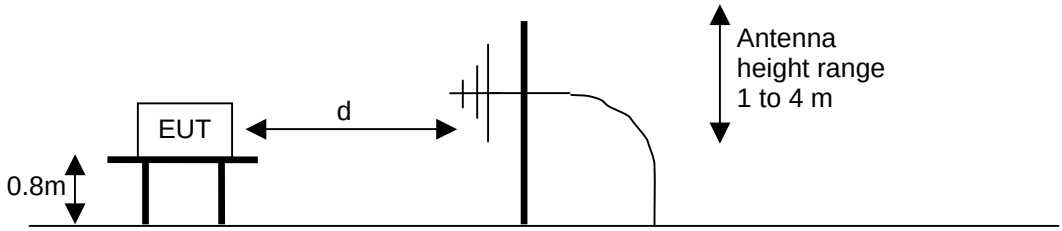
When testing above 18 GHz, the receive antenna is located at 1meter from the EUT and the antenna height is restricted to a maximum of 2.5 meters.



Typical Test Configuration for Radiated Field Strength Measurements



The ground plane extends beyond the ellipse defined in CISPR 16 / CISPR 22 / ANSI C63.4 and is large enough to accommodate test distances (d) of 3m and 10m. Refer to the test data tables for the actual measurement distance.



Test Configuration for Radiated Field Strength Measurements
OATS- Plan and Side Views

BANDWIDTH MEASUREMENTS

The 6dB, 20dB and/or 26dB signal bandwidth is measured in using the bandwidths recommended by ANSI C63.4. When required, the 99% bandwidth is measured using the methods detailed in RSS GEN.

The limits for conducted emissions are given in units of microvolts, and the limits for radiated emissions are given in units of microvolts per meter at a specified test distance. Data is measured in the logarithmic form of decibels relative to one microvolt, or dB microvolts (dBuV). For radiated emissions, the measured data is converted to the field strength at the antenna in dB microvolts per meter (dBuV/m). The results are then converted to the linear forms of uV and uV/m for comparison to published specifications.

For reference, converting the specification limits from linear to decibel form is accomplished by taking the base ten logarithm, then multiplying by 20. These limits in both linear and logarithmic form are as follows:

CONDUCTED EMISSIONS SPECIFICATION LIMITS: FCC 15.207; FCC 15.107(a), RSS GEN

The table below shows the limits for the emissions on the AC power line from an intentional radiator and a receiver.

Frequency (MHz)	Average Limit (dBuV)	Quasi Peak Limit (dBuV)
0.150 to 0.500	Linear decrease on logarithmic frequency axis between 56.0 and 46.0	Linear decrease on logarithmic frequency axis between 66.0 and 56.0
0.500 to 5.000	46.0	56.0
5.000 to 30.000	50.0	60.0

GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS

The table below shows the limits for the spurious emissions from transmitters that fall in restricted bands[1] (with the exception of transmitters operating under FCC Part 15 Subpart D and RSS 210 Annex 9), the limits for all emissions from a low power device operating under the general rules of RSS 310 (tables 3 and 4), RSS 210 (table 2) and FCC Part 15 Subpart C section 15.209.

Frequency Range (MHz)	Limit (uV/m)	Limit (dBuV/m @ 3m)
0.009-0.490	$2400/F_{KHz}$ @ 300m	$67.6-20*\log_{10}(F_{KHz})$ @ 300m
0.490-1.705	$24000/F_{KHz}$ @ 30m	$87.6-20*\log_{10}(F_{KHz})$ @ 30m
1.705 to 30	30 @ 30m	29.5 @ 30m
30 to 88	100 @ 3m	40 @ 3m
88 to 216	150 @ 3m	43.5 @ 3m
216 to 960	200 @ 3m	46.0 @ 3m
Above 960	500 @ 3m	54.0 @ 3m

RECEIVER RADIATED SPURIOUS EMISSIONS SPECIFICATION LIMITS

The table below shows the limits for the spurious emissions from receivers as detailed in FCC Part 15.109, RSS 210 Table 2, RSS GEN Table 1 and RSS 310 Table 3. Note that receivers operating outside of the frequency range 30 MHz – 960 MHz are exempt from the requirements of 15.109.

Frequency Range (MHz)	Limit (uV/m @ 3m)	Limit (dBuV/m @ 3m)
30 to 88	100	40
88 to 216	150	43.5
216 to 960	200	46.0
Above 960	500	54.0

OUTPUT POWER LIMITS – DIGITAL TRANSMISSION SYSTEMS

[1] The restricted bands are detailed in FCC 15.203, RSS 210 Table 1 and RSS 310 Table 2

The table below shows the limits for output power and output power density. Where the signal bandwidth is less than 20 MHz the maximum output power is reduced to the power spectral density limit plus 10 times the log of the bandwidth (in MHz).

Operating Frequency (MHz)	Output Power	Power Spectral Density
902 – 928	1 Watt (30 dBm)	8 dBm/3kHz
2400 – 2483.5	1 Watt (30 dBm)	8 dBm/3kHz
5725 – 5850	1 Watt (30 dBm)	8 dBm/3kHz

The maximum permitted output power is reduced by 1dB for every dB the antenna gain exceeds 6dBi. Fixed point-to-point applications using the 5725 – 5850 MHz band are not subject to this restriction.

TRANSMIT MODE SPURIOUS RADIATED EMISSIONS LIMITS – FHSS and DTS SYSTEMS

The limits for unwanted (spurious) emissions from the transmitter falling in the restricted bands are those specified in the general limits sections of FCC Part 15 and RSS 210. All other unwanted (spurious) emissions shall be at least 20dB below the level of the highest in-band signal level (30dB if the power is measured using the sample detector/power averaging method).

SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

Receiver readings are compared directly to the conducted emissions specification limit (decibel form) as follows:

$$R_r - S = M$$

where:

R_r = Receiver Reading in dBuV

S = Specification Limit in dBuV

M = Margin to Specification in +/- dB

SAMPLE CALCULATIONS - RADIATED EMISSIONS

Receiver readings are compared directly to the specification limit (decibel form). The receiver internally corrects for cable loss, preamplifier gain, and antenna factor. The calculations are in the reverse direction of the actual signal flow, thus cable loss is added and the amplifier gain is subtracted. The Antenna Factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements.

A distance factor, when used for electric field measurements above 30MHz, is calculated by using the following formula:

$$F_d = 20*LOG_{10} (D_m/D_s)$$

where:

F_d = Distance Factor in dB

D_m = Measurement Distance in meters

D_s = Specification Distance in meters

For electric field measurements below 30MHz the extrapolation factor is either determined by making measurements at multiple distances or a theoretical value is calculated using the formula:

$$F_d = 40*LOG_{10} (D_m/D_s)$$

Measurement Distance is the distance at which the measurements were taken and Specification Distance is the distance at which the specification limits are based. The antenna factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements.

The margin of a given emission peak relative to the limit is calculated as follows:

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

R_r = Receiver Reading in dBuV/m

F_d = Distance Factor in dB

R_c = Corrected Reading in dBuV/m

L_s = Specification Limit in dBuV/m

M = Margin in dB Relative to Spec

SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

Where the radiated electric field strength is expressed in terms of the equivalent isotropic radiated power (eirp), or where a field strength measurement of output power is made in lieu of a direct measurement, the following formula is used to convert between eirp and field strength at a distance of 3m from the equipment under test:

$$E = \frac{1000000 \sqrt{30 P}}{3} \text{ microvolts per meter}$$

where P is the eirp (Watts)

EXHIBIT 1: Test Equipment Calibration Data

1 Page

Radiated Emissions, 30 - 26,500 MHz, 21-Jun-07
Engineer: Rafael Varelas

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz (SA40-Red)	3115	1142	07-Jun-08
Hewlett Packard	High Pass filter, 8.2 GHz	P/N 84300-80039	1156	05-Jul-07
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FMT (SA40) Blue	8564E (84125C)	1393	09-Jan-08
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	1780	15-Nov-07
Hewlett Packard	High Pass filter, 3.5 GHz (Purple System)	P/N 84300-80038 (84125C)	1768	08-Nov-07

Conducted Emissions - AC Power Ports, 22-Jun-07
Engineer: wfisher

Manufacturer	Description	Model #	Asset #	Cal Due
Elliott Laboratories	LISN, FCC / CISPR	LISN-3, OATS	304	30-Jun-07
Rohde & Schwarz	Pulse Limiter	ESH3 Z2	372	28-Aug-07
Hewlett Packard	EMC Spectrum Analyzer, 9 KHz - 22 GHz	8593EM	1319	18-May-08
Rohde & Schwarz	Test Receiver, 0.009-2750 MHz	ESN	1332	21-Nov-07

Transmitter Testing, June 19 thru July 16, 2007
Engineer: Mehran Birgani, Juan Martinez and Rafael Varelas

Manufacturer	Description	Model #	Asset #	Cal Due
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	10-May-08
EMCO	Antenna, Horn, 18-26.5 GHz (SA40-Purple)	3160-09 (84125C)	1773	10-Nov-07
EMCO	Antenna, Horn, 26.5-40 GHz (SA40-Purple)	3160-10 (84125C)	1774	10-Nov-07
Hewlett Packard	EMC Spectrum Analyzer, 9 kHz - 6.5 GHz	8595EM	780	05-Sep-07
Hewlett Packard	High Pass filter, 8.2 GHz (Purple System)	P/N 84300-80039 (84125C)	1767	08-Nov-07
Hewlett Packard	Test Sys (SA40, 9kHz - 40GHz) Purple	84125C	1770	11-Aug-07
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	1780	15-Nov-07
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	15-Nov-07

EXHIBIT 2: Test Measurement Data

26 Pages

Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	Test-Log Number:	T68341
		Project Manager:	Susan Pelzl
Contact:	Bob Hymes		
Emissions Spec:	EN55022 / FCC	Class:	B
Immunity Spec:	-	Environment:	-

EMC Test Data

For The

OQO

Model

2050 and 2060

Date of Last Test: 7/31/2007

Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	Test-Log Number:	T68341
		Project Manager:	Susan Pelzl
Contact:	Bob Hymes		
Emissions Spec:	EN55022 / FCC	Class:	B
Immunity Spec:	-	Environment:	-

EUT INFORMATION

The following information was collected during the test sessions(s).
The client agreed provide the following information after the test session(s).

General Description

The EUT is a Handheld PC. Since the EUT would be placed on a table top during operation, the EUT was treated as table-top equipment during testing to simulate the end-user environment. The electrical rating of the EUT is -5Vdc, 3.5 Amps.

Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
OQO	Model 02	Handheld PC	19 (potassium)	

Other EUT Details

The following EUT details should be noted: The 2060 model is capabable of transmitting on both the WLAN and WWAN frequencies concurrently. The 2050 model cannot. The model 2042 is identical to the model 2050 except it does not have the Novatel EV-DO module

EUT Antenna (Intentional Radiators Only)

The EUT antenna is an internal flex.
The antenna is integral to the device.

EUT Enclosure

The EUT enclosure is primarily constructed of metal and plastic. It measures approximately 15 cm long by 5 cm Wide by 2 cm high.

Modification History

Mod. #	Test	Date	Modification
1	TX Spurious Emissions	19-Jun	Three 1pF caps were added to the bypass circuit of the power amplifier for the 5GHz transmitter.
2			
3			

Modifications applied are assumed to be used on subsequent tests unless otherwise stated as a further modification.

Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Project Manager:	Susan Pelzl
Contact:	Bob Hymes		
Emissions Spec:	EN55022 / FCC	Class:	B
Immunity Spec:	-	Environment:	-

Test Configuration #1

The following information was collected during the test sessions(s).

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Microsoft	Wheel Mouse Optical USB	Mouse	56180-523-0422391-1	DoC
Samsung	204B	Monitor	BR20HVFL400076K	DoC

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
-	-	-	-	-

Cabling and Ports

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Video	Monitor	15pin Dsub	Shielded	2.0
USB	Mouse	USB 4wire	Shielded	2.0
Video	Monitor	15pin Dsub	Shielded	2.0
AC Power	AC Mains	2 wire	unshielded	2.0
DC Power	Docking station	2 wire	-	-

EUT Operation During Emissions Tests

During testing the EUT was configured to continuously transmit on the desired channel, at the selected power level.

Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	N/A

Radiated Emissions

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 6/19/2007 0:07
Test Engineer: Rafael Varelas
Test Location: SVOATS #2
Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and all local support equipment were located on the turntable for radiated spurious emissions testing.

For radiated emissions testing the measurement antenna was located 3 meters from the EUT.

Ambient Conditions:

Temperature: 13 °C
Rel. Humidity: 77 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1a - c	RE, 30 - 18000 MHz - Spurious Emissions	FCC Part 15.209 / 15.407	Pass	53.2dBµV/m (457.1µV/m) @ 11197.7MHz (-0.8dB)
2a - c (Receive mode)	RE, 30 - 18000 MHz Spurious Emissions	RSS GEN	Pass	37.6dBµV/m (75.9µV/m) @ 11199.0MHz (-16.4dB)

Modifications Made During Testing:

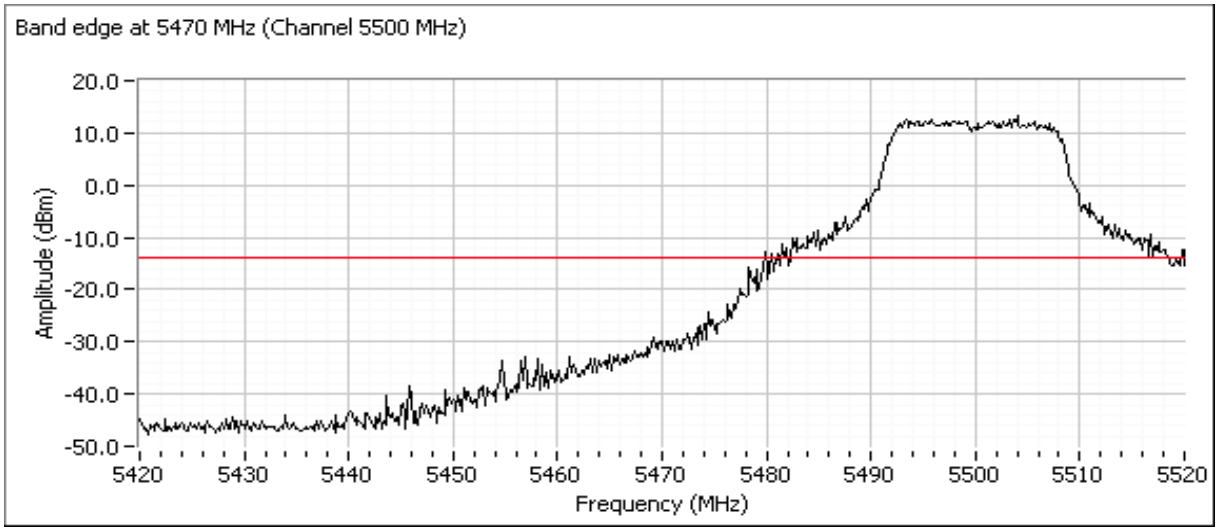
No modifications were made to the EUT during testing.

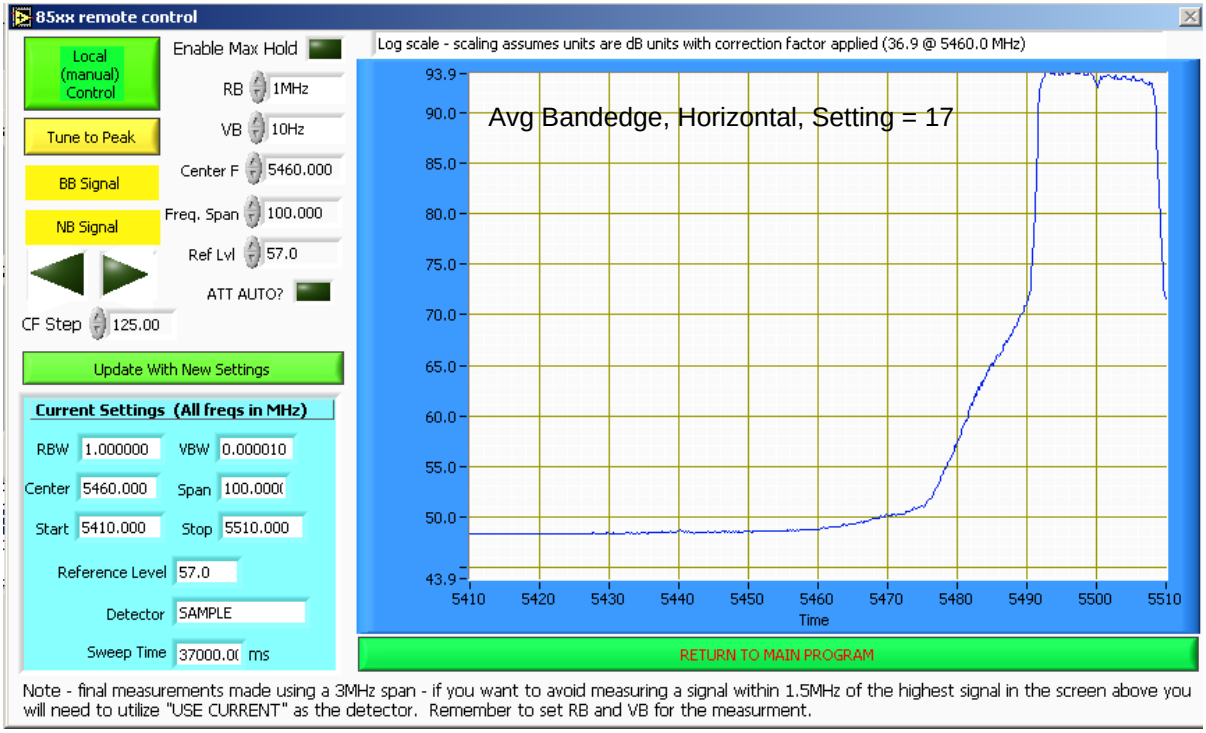
Deviations From The Standard

No deviations were made from the requirements of the standard.

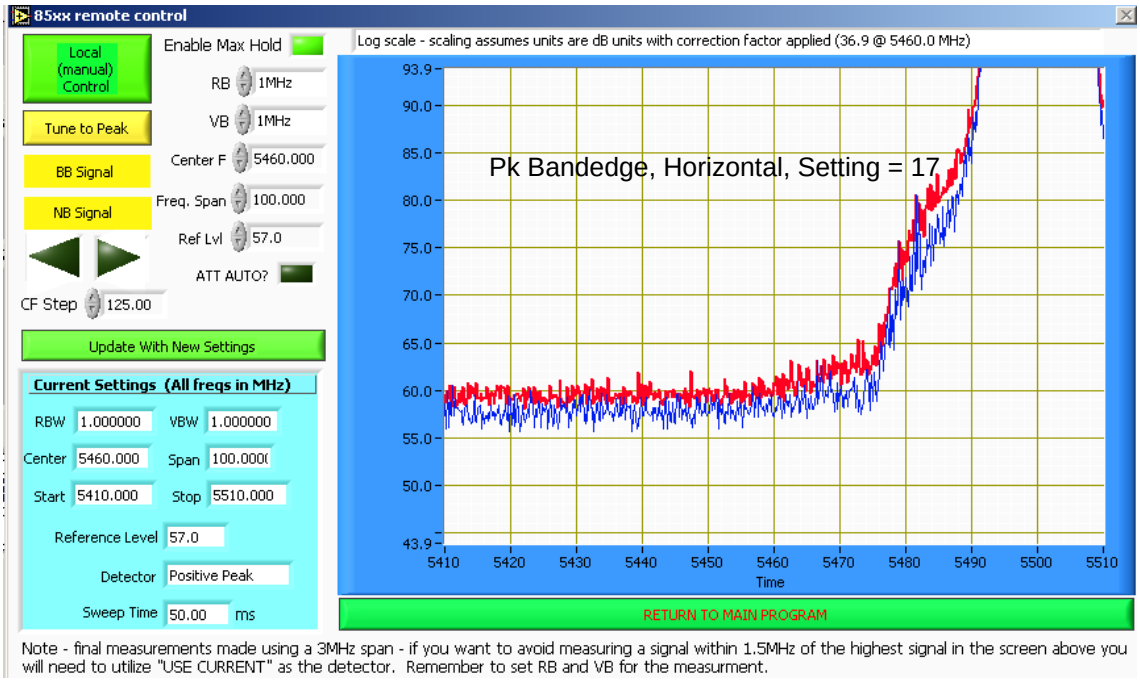
Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	N/A

Run #1a: Radiated Spurious Emissions, 30 - 18000 MHz. Low Channel @ 5500 MHz
Setting = 17
EUT on its Side

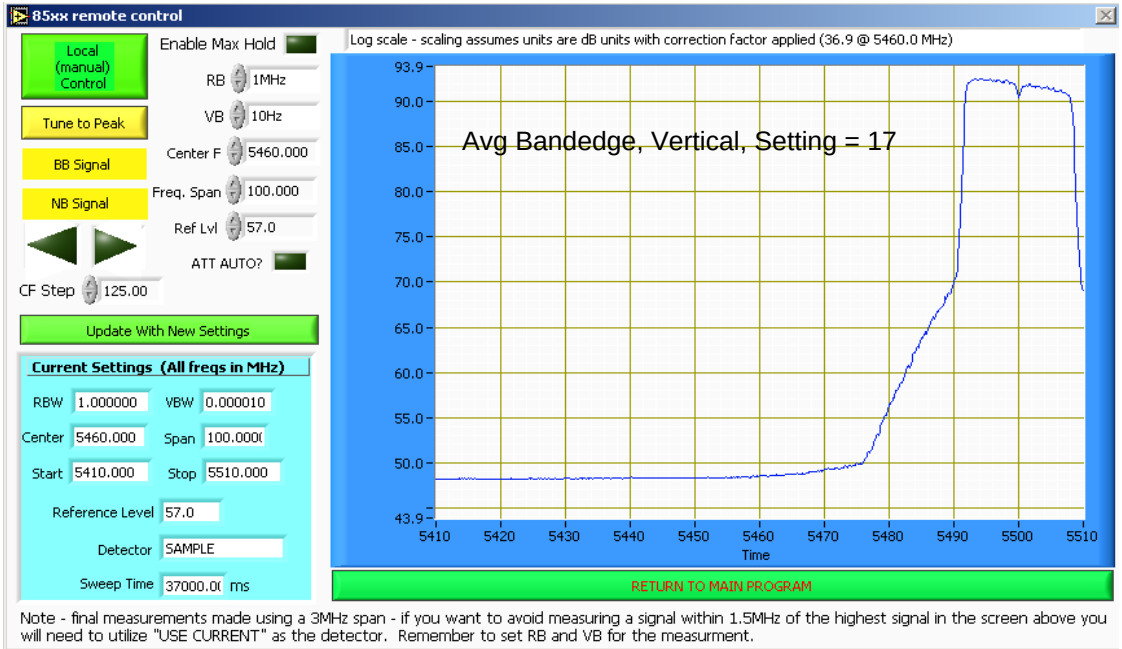




Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	N/A

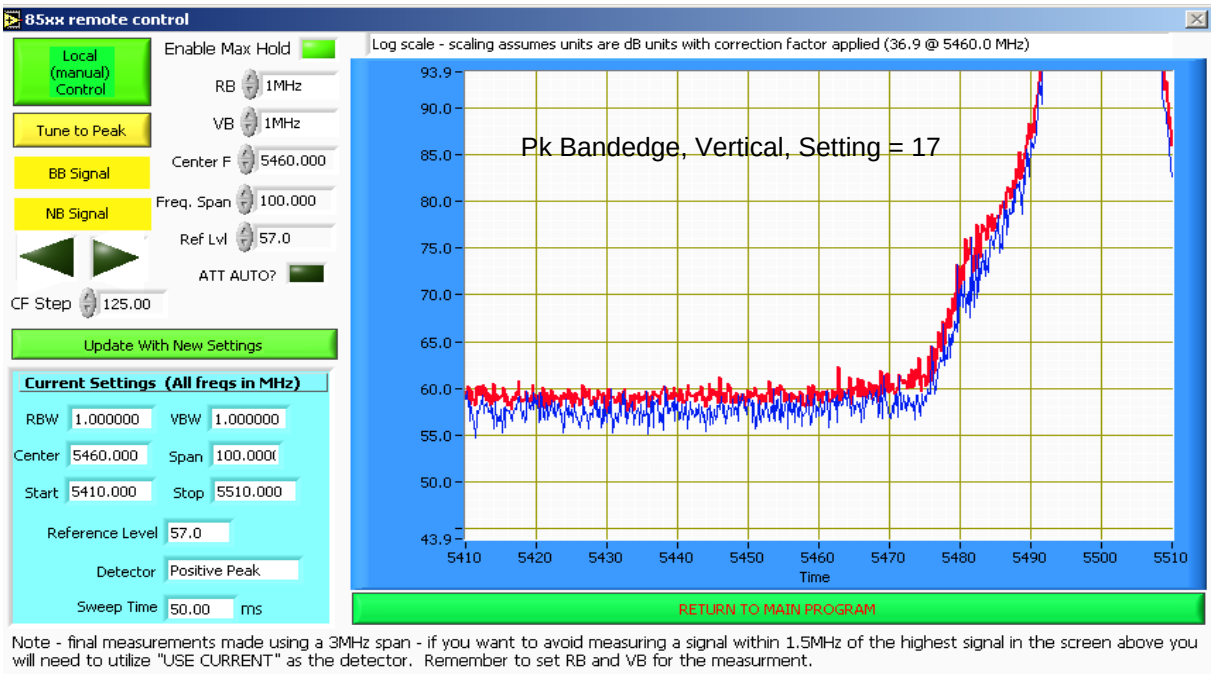


Note - final measurements made using a 3MHz span - if you want to avoid measuring a signal within 1.5MHz of the highest signal in the screen above you will need to utilize "USE CURRENT" as the detector. Remember to set RB and VB for the measurment.



Note - final measurements made using a 3MHz span - if you want to avoid measuring a signal within 1.5MHz of the highest signal in the screen above you will need to utilize "USE CURRENT" as the detector. Remember to set RB and VB for the measurment.

Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	N/A



Note - final measurements made using a 3MHz span - if you want to avoid measuring a signal within 1.5MHz of the highest signal in the screen above you will need to utilize "USE CURRENT" as the detector. Remember to set RB and VB for the measurment.

Run #1a: Continued

Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5459.170	50.0	H	54.0	-4.0	AVG	55	1.1	
5459.170	62.0	H	74.0	-12.0	PK	55	1.1	
5457.470	49.7	V	54.0	-4.3	AVG	134	1.0	
5457.470	61.2	V	74.0	-12.8	PK	134	1.0	

Other Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10998.870	52.9	H	54.0	-1.1	AVG	154	1.1	
10998.870	65.5	H	74.0	-8.5	PK	154	1.1	
10998.670	45.0	V	54.0	-9.0	AVG	131	1.0	
10998.670	58.7	V	74.0	-15.3	PK	131	1.0	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm/MHz (~68dBuV/m).

Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	N/A

Run #1b: Radiated Spurious Emissions, 30 - 18000 MHz. Center Channel @ 5600 MHz
EUT on its Side

Setting = 17

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11197.670	53.2	H	54.0	-0.8	AVG	154	1.4	
11197.670	67.1	H	74.0	-6.9	PK	154	1.4	
11196.670	41.1	V	54.0	-12.9	AVG	90	1.4	
11196.670	53.3	V	74.0	-20.7	PK	90	1.4	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm/MHz (~68dBuV/m).

Run #1c: Radiated Spurious Emissions, 30 - 18000 MHz. High Channel @ 5700 MHz
EUT on its Side
Setting = 17

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11397.200	50.7	H	54.0	-3.3	AVG	177	1.1	
11397.200	63.6	H	74.0	-10.4	PK	177	1.1	
11400.500	41.5	V	54.0	-12.5	AVG	144	2.0	
11400.500	52.9	V	74.0	-21.1	PK	144	2.0	

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set to -27dBm/MHz (~68dBuV/m).

Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	N/A

Run #2: Receive Radiated Spurious Emissions, 30 - 18000 MHz.

Run #2a: Radiated Spurious Emissions, 30 - 18000 MHz. Low Channel @ 5500 MHz
EUT on its Side

Other Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
10998.680	37.4	V	54.0	-16.6	AVG	0	1.0	
11000.760	37.2	H	54.0	-16.8	AVG	44	1.0	
5501.180	30.8	H	54.0	-23.2	AVG	164	1.0	
5499.150	30.6	V	54.0	-23.4	AVG	263	1.0	
10998.680	49.3	V	74.0	-24.7	PK	0	1.0	
11000.760	48.9	H	74.0	-25.1	PK	44	1.0	
5501.180	43.1	H	74.0	-30.9	PK	164	1.0	
5499.150	41.9	V	74.0	-32.1	PK	263	1.0	

Run #2b: Radiated Spurious Emissions, 30 - 18000 MHz. Center Channel @ 5600 MHz
EUT on its Side

Other Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11199.010	37.6	H	54.0	-16.4	AVG	86	1.0	
11201.400	37.6	V	54.0	-16.4	AVG	346	1.0	
5599.900	30.7	H	54.0	-23.3	AVG	291	1.0	
5600.130	30.7	V	54.0	-23.3	AVG	165	1.0	
11199.010	49.5	H	74.0	-24.5	PK	86	1.0	
11201.400	49.0	V	74.0	-25.0	PK	346	1.0	
5599.900	42.1	H	74.0	-31.9	PK	291	1.0	
5600.130	42.1	V	74.0	-31.9	PK	165	1.0	

Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	N/A

Run #2c: Radiated Spurious Emissions, 30 - 18000 MHz. High Channel @ 5700 MHz
EUT on its Side

Other Spurious Radiated Emissions:

Frequency	Level	Pol	15.209 / 15.407		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
11398.550	37.4	V	54.0	-16.6	AVG	360	1.0	
11400.770	37.3	H	54.0	-16.7	AVG	250	1.0	
5700.390	30.7	V	54.0	-23.3	AVG	360	1.2	
5699.860	30.7	H	54.0	-23.3	AVG	184	1.1	
11398.550	49.4	V	74.0	-24.6	PK	360	1.0	
11400.770	48.4	H	74.0	-25.6	PK	250	1.0	
5699.860	42.1	H	74.0	-31.9	PK	184	1.1	
5700.390	41.9	V	74.0	-32.1	PK	360	1.2	

Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	N/A

FCC Part 15 Subpart E Tests

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 7/16/2007
Test Engineer: Mehran Birgani
Test Location: SVOATS #2

Config. Used: 1
Config Change: None
EUT Voltage: 120V/60Hz

General Test Configuration

When measuring the conducted emissions from the EUT's antenna port, the antenna port of the EUT was connected to the spectrum analyzer or power meter via a suitable attenuator to prevent overloading the measurement system. All measurements are corrected

Ambient Conditions:

Temperature: 22 °C
Rel. Humidity: 41 %

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5475-5725 MHz	15.407(a) (1), (2)	Pass	19.8 dBm
1	PSD, 5475-5725 MHz	15.407(a) (1), (2)	Pass	8.50 dBm/ 1MHz
1	26dB Bandwidth	15.407	Pass	28.9 MHz
1	99% Bandwidth	RSS 210	-	17.8 MHz
2	Peak Excursion Envelope	15.407(a) (6)	Pass	11.5 dBm
3	Antenna Conducted - Out of Band Spurious	15.407(b)	Pass	All emissions below the 27dBm/MHz limit

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	N/A

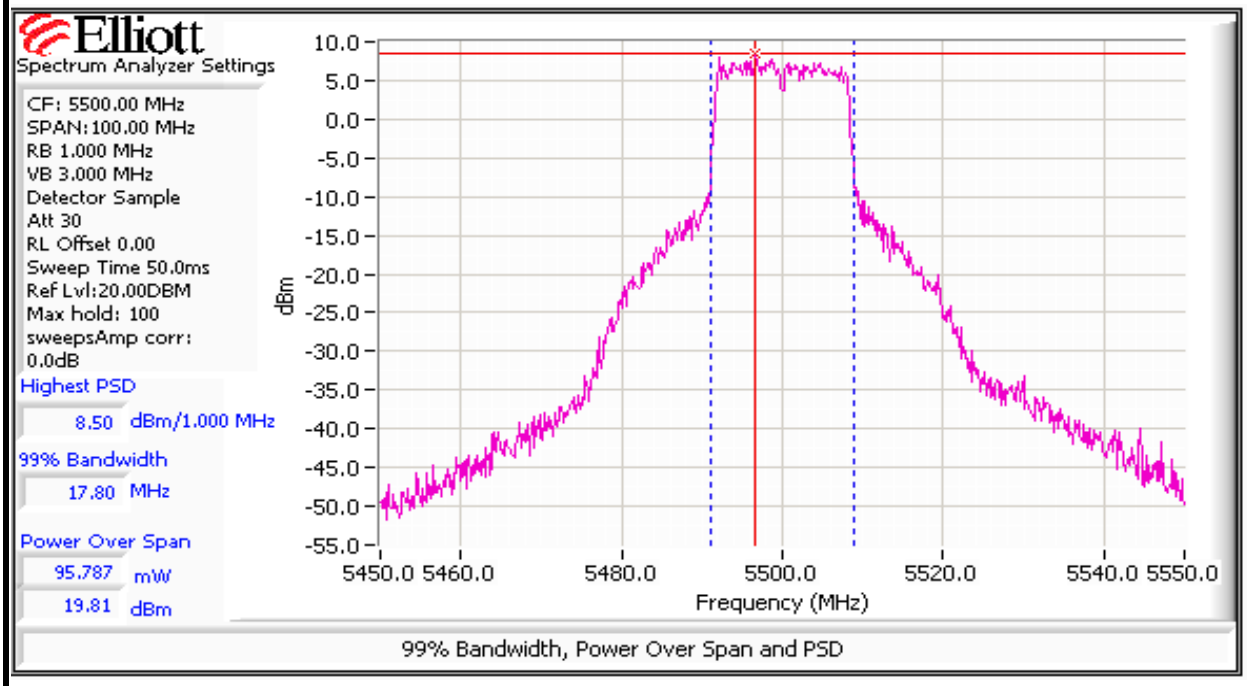
Run #1: Bandwidth, Output Power and Power spectral Density

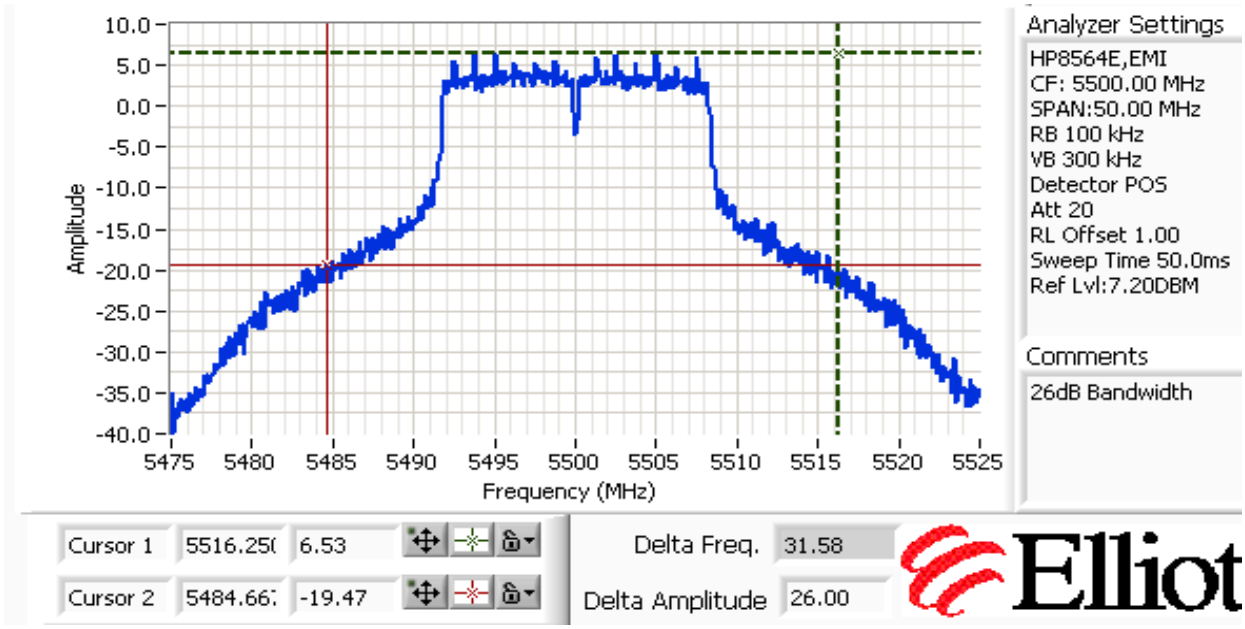
Antenna Gain: 0 dBi

Frequency (MHz)	Software Setting	Bandwidth		Output Power[1] dBm		Power (Watts)	PSD[2] dBm/MHz			Result
		26dB	99%[4]	Measured	Limit		Measured	FCC Limit	RSS Limit[3]	
5475-5725 MHz Band										
5500	17.0	31.6	17.8	19.8	24.0	0.096	8.50	11.0	10.3	Pass
5600	17.0	29.3	17.2	18.9	24.0	0.077	7.50	11.0	9.5	Pass
5700	17.0	28.9	17.6	18.9	24.0	0.077	7.17	11.0	9.4	Pass

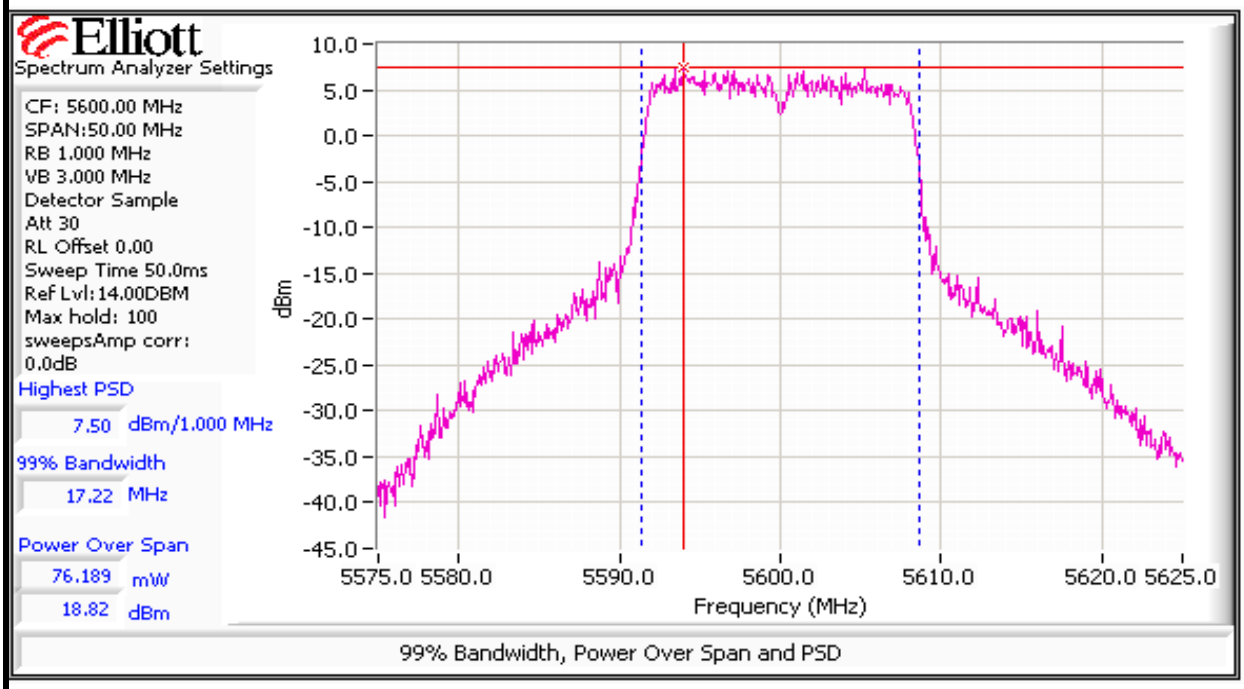
Note 1:	Output power measured using a spectrum analyzer (see plots below): RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 50 MHz.
Note 2:	Measured using the same analyzer settings used for output power.
Note 3:	For RSS210 the measured value of the PSD (see note 3) must not exceed the average value (calculated from the measured power divided by the measured 99% bandwidth) by more than 3dB.
Note 4:	99% Bandwidth measured in accordance with RSS GEN - RB > 1% of span and VB >=3xRB
Note 5:	At 5250, power was measured using avg power meter for comparison to SAR power; avg power was 17.1 dBm. At 5600 MHz, power was measured using avg power meter for comparison to SAR power; Avg power was 17.8 dBm.

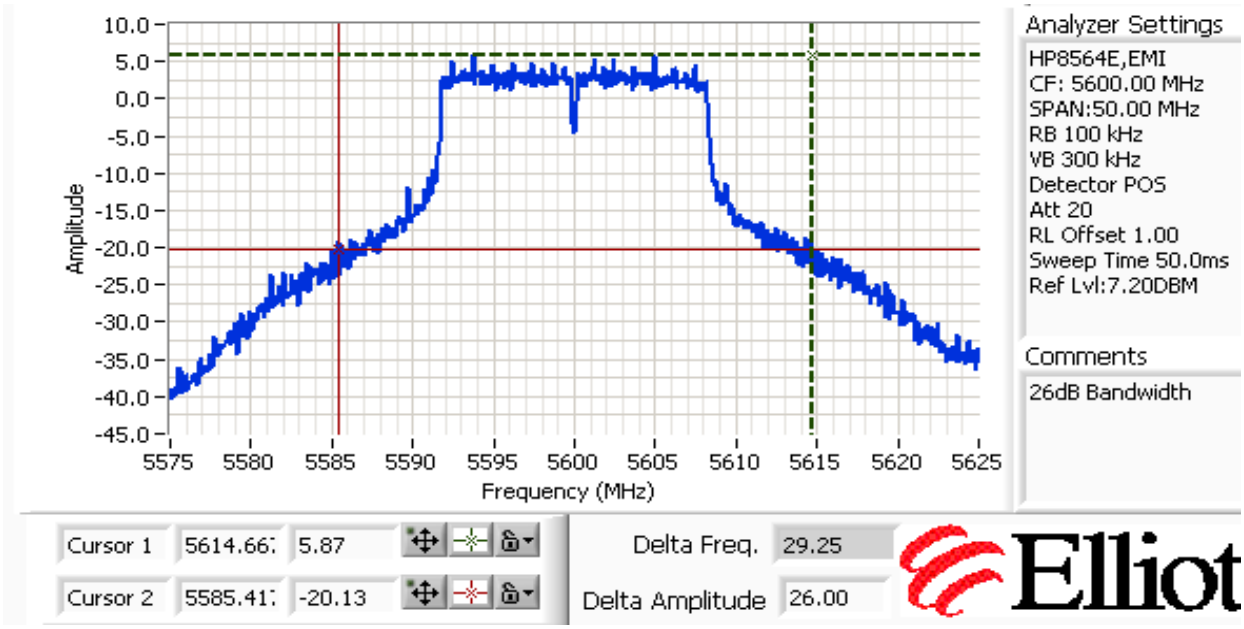
Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	N/A



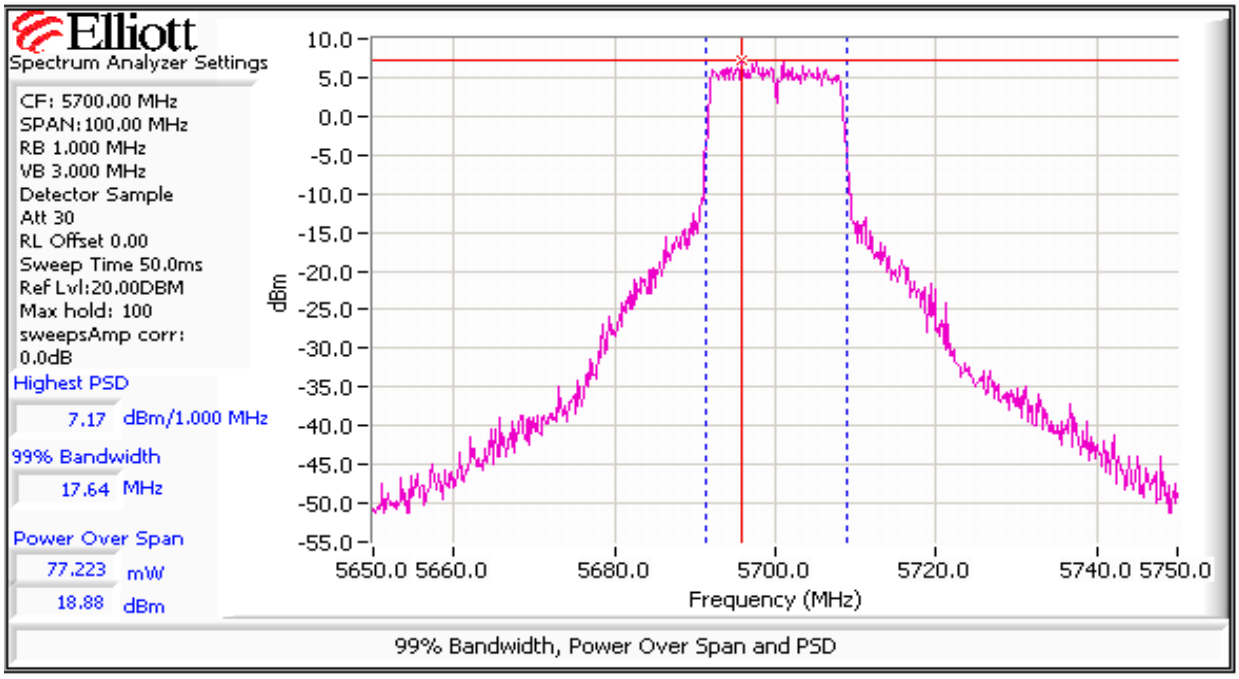


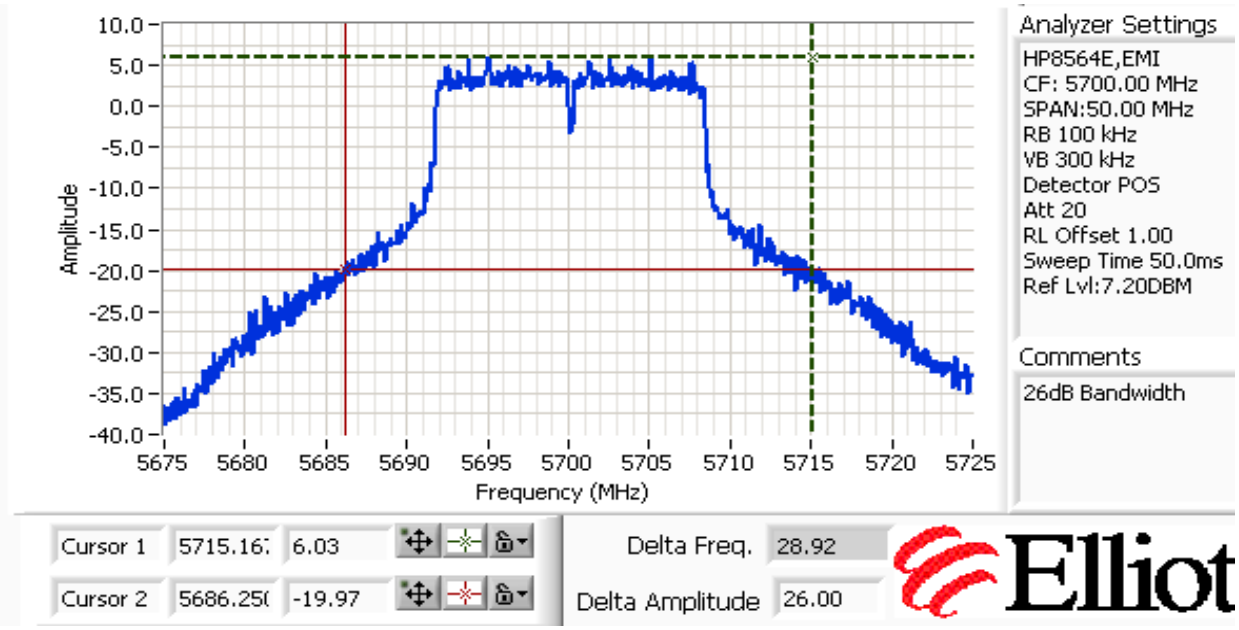
Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	N/A





Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	N/A





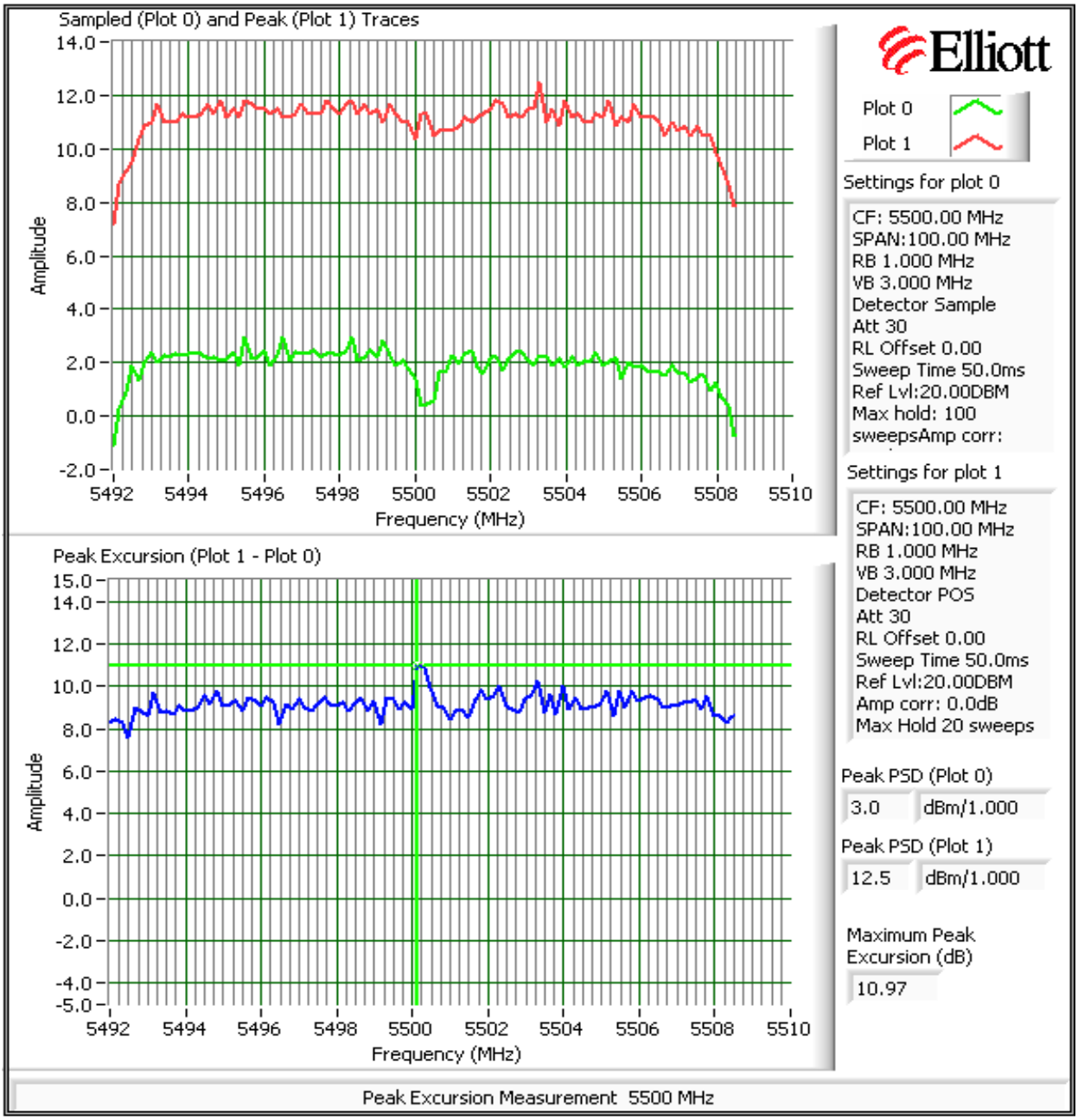
Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	N/A

Run #2: Peak Excursion Measurement

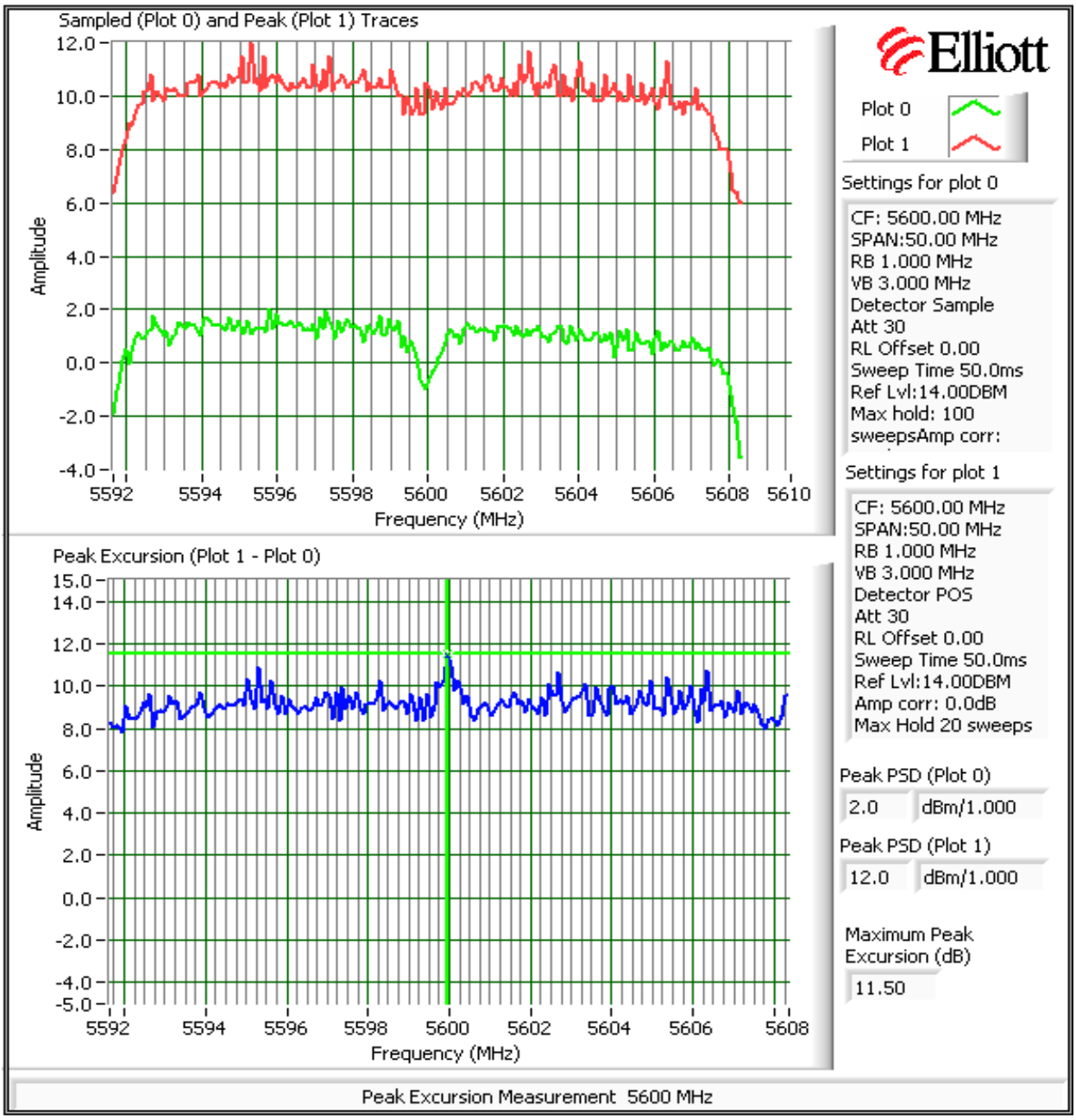
Plots Showing Peak Excursion

Trace A: RBW = VBW = 1MHz

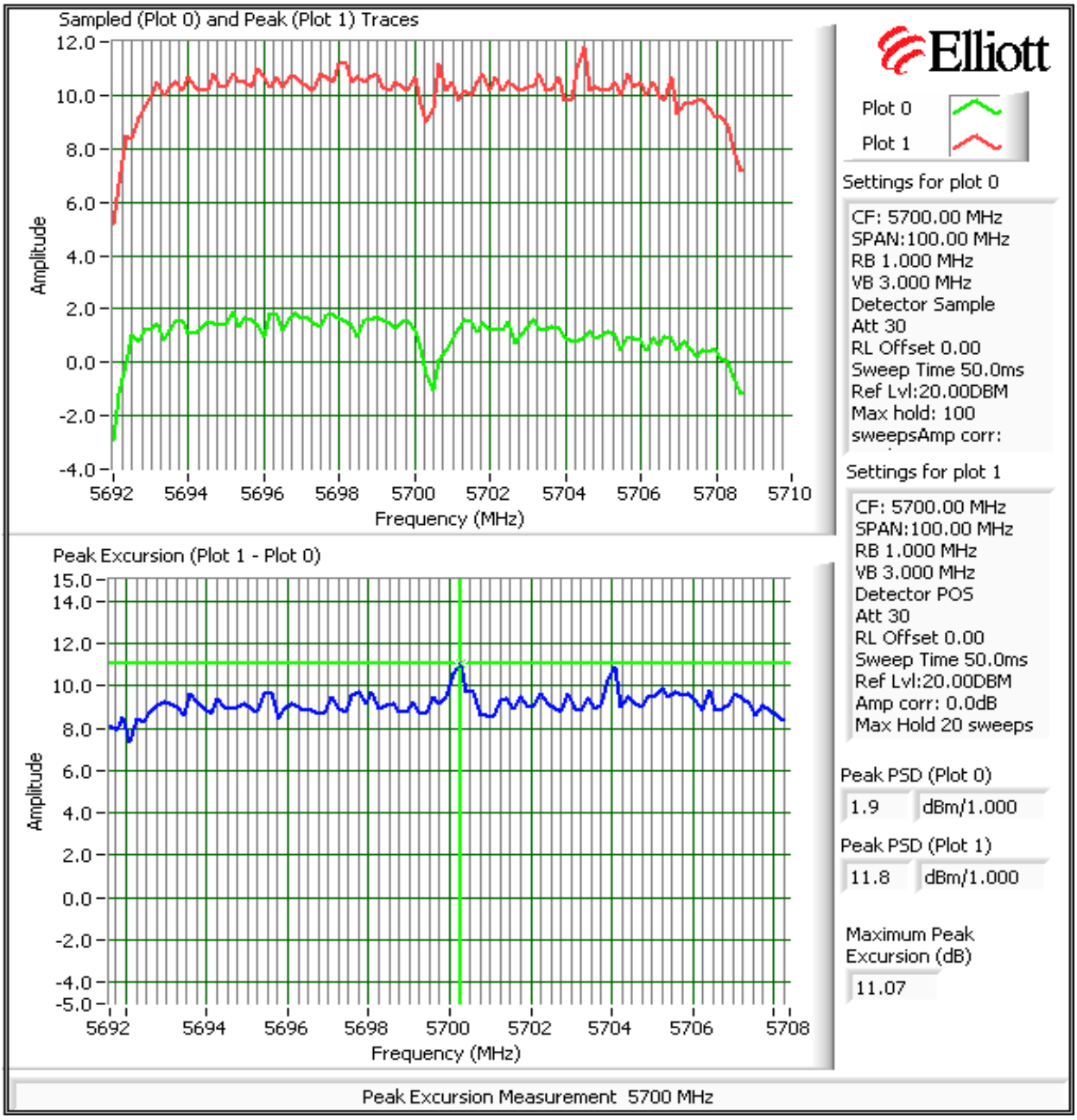
Trace B: RBW = 1 MHz, VBW = 30kHz



Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	N/A



Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	N/A



Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	N/A

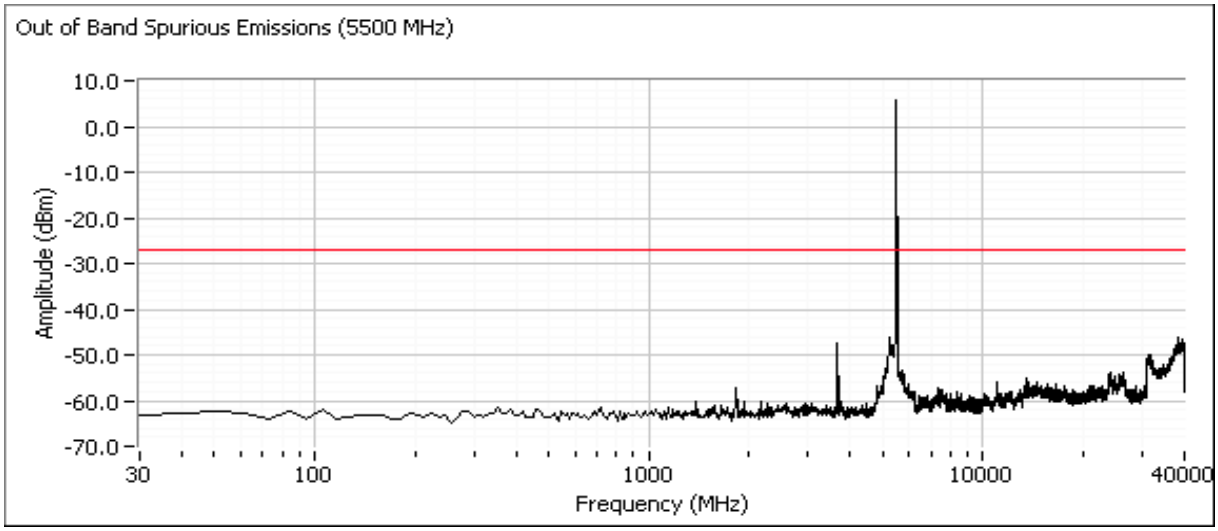
Run #3: Out Of Band Spurious Emissions - Antenna Conducted

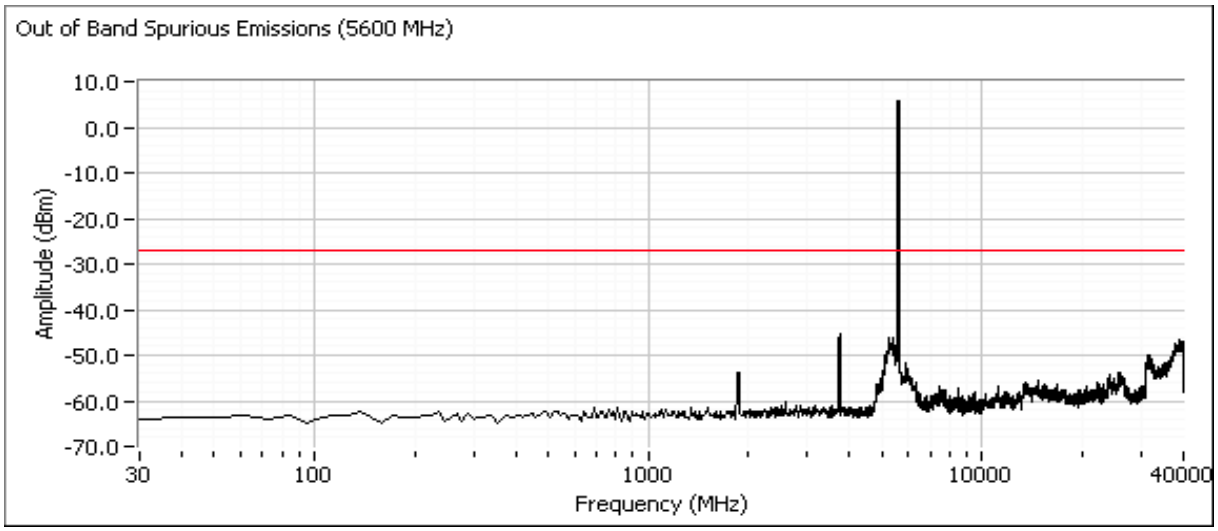
Maximum Antenna Gain:	0	dBi
Spurious Limit:	-27	dBm/MHz eirp
Limit Used On Plots [Note 1]:	-27	dBm/MHz

Note 1:	The -27dBm/MHz limit is an eirp limit. The limit for antenna port conducted measurements is adjusted to take into consideration the maximum antenna gain (limit = -27dBm - antenna gain). Radiated field strength measurements for signals more than 50MHz fr
Note 2:	All spurious signals below 1GHz are measured during digital device radiated emissions test.
Note 3:	Signals within 10MHz of the 5.725 or 5.825 Band edge are subject to a limit of -17dBm EIRP
Note 4:	If the device is for outdoor use then the -27dBm eirp limit also applies in the 5150 - 5250 MHz band.
Note 5:	Signals that fall in the restricted bands of 15.205 are subject to the limit of 15.209.

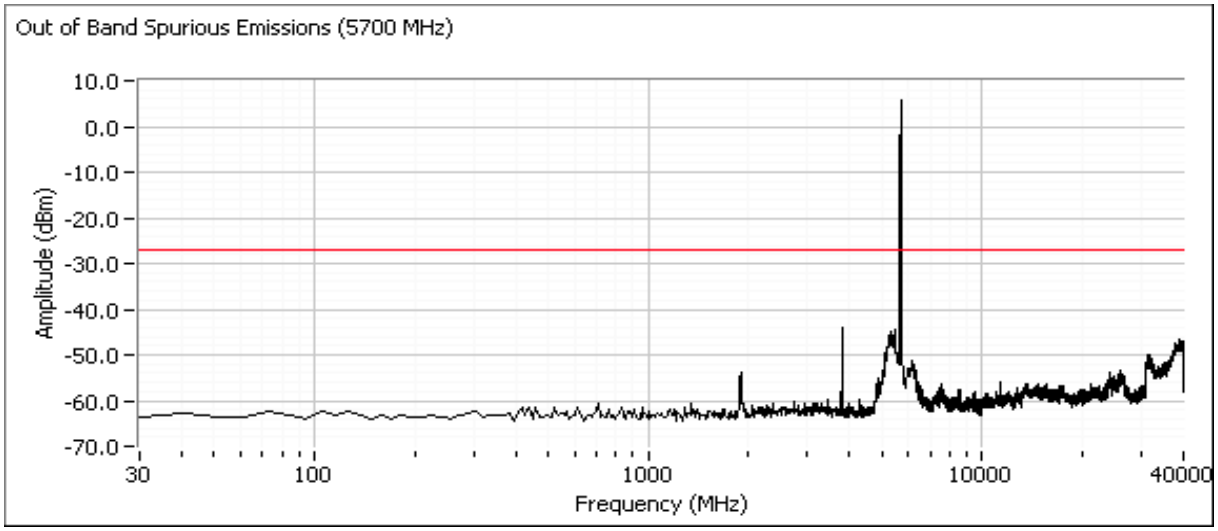
Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	N/A

Plots Showing Out-Of-Band Emissions (RBW=VBW=1MHz)





Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	N/A



Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	B

Conducted Emissions - Power Ports

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 6/22/2007 13:39
Test Engineer: Wayne Fisher
Test Location: SVOATS #2
Config. Used: 1
Config Change: None
EUT Voltage: Refer to individual run

General Test Configuration

The EUT was located on a wooden table, 40 cm from a vertical coupling plane and 80cm from the LISN. A second LISN was used for all local support equipment.

Ambient Conditions:

Temperature: 22.1 °C
Rel. Humidity: 51 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power, 230V/50Hz	EN55022 Class B	Pass	58.8dBµV (871.0µV) @ 0.179MHz (-5.7dB)
2	CE, AC Power,120V/60Hz	EN55022 Class B	Pass	40.8dBµV @ 7.866MHz (-9.2dB)

Modifications Made During Testing:

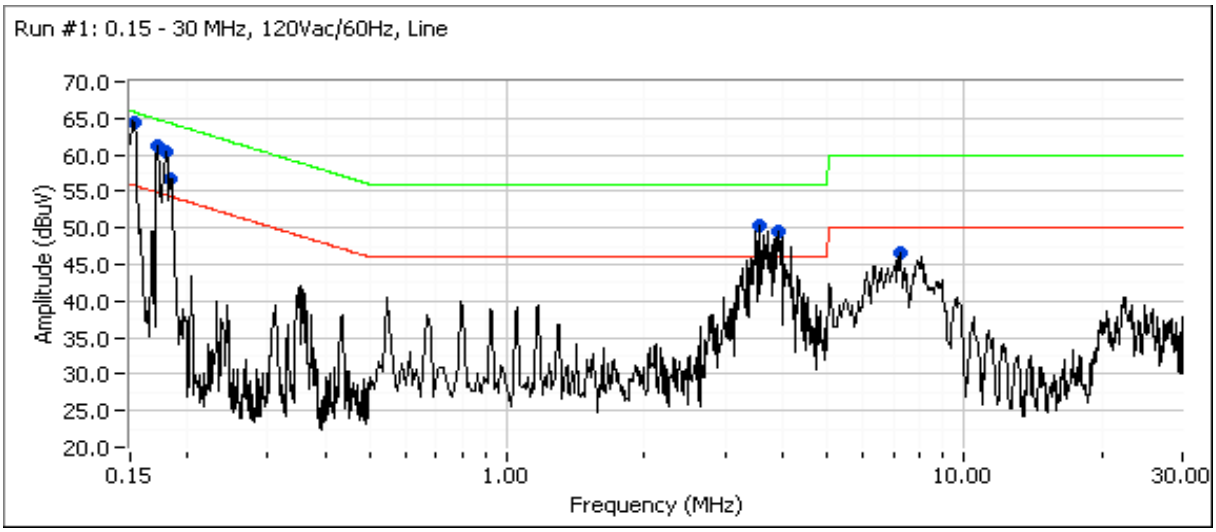
No modifications were made to the EUT during testing

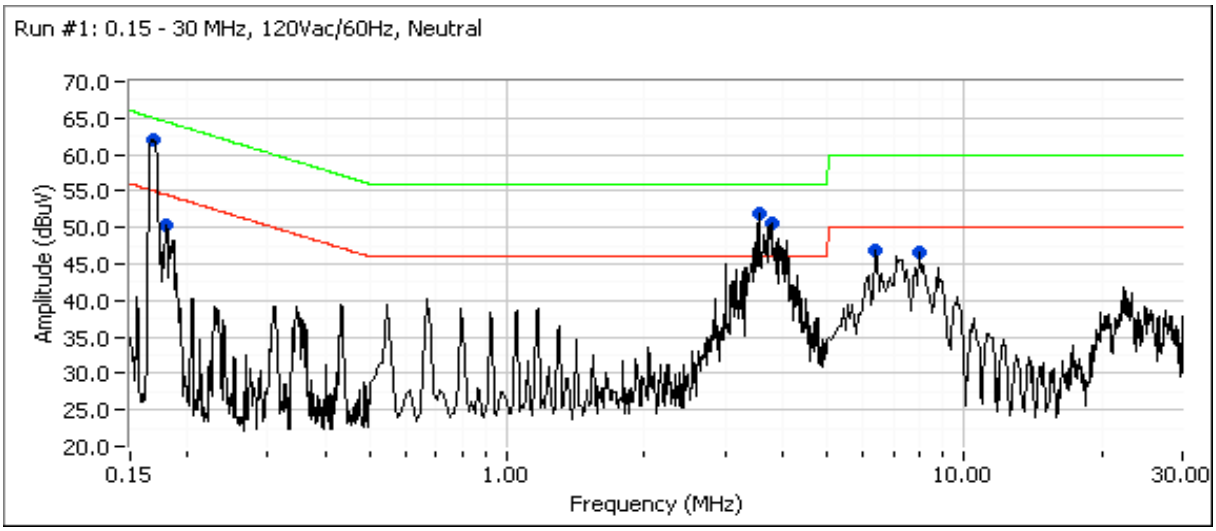
Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	B

Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz





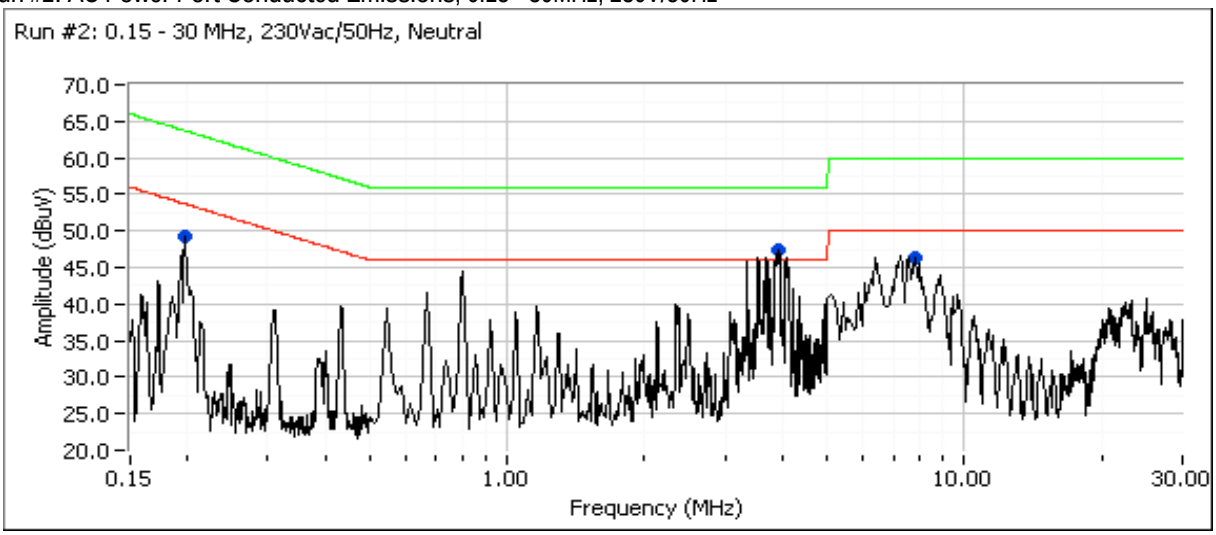
Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	B

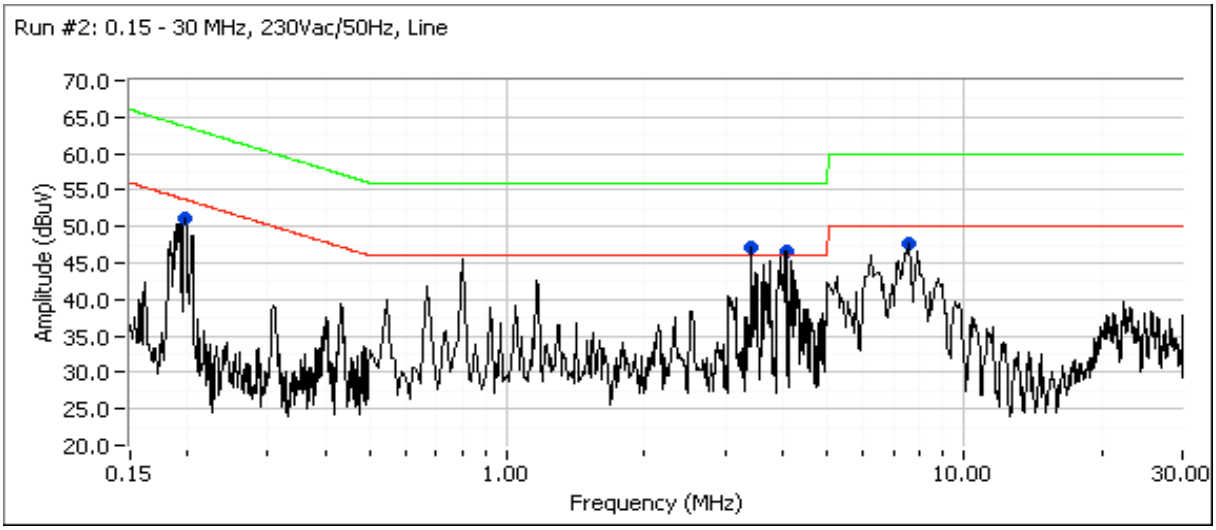
Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz

Frequency	Level	AC	EN55022 B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.179	58.8	Line 1	64.5	-5.7	QP	
0.168	59.0	Neutral	65.1	-6.1	QP	
0.185	57.9	Line 1	64.2	-6.3	QP	
0.185	57.7	Line 1	64.3	-6.6	QP	
0.180	57.3	Neutral	64.5	-7.2	QP	
7.191	42.7	Line 1	50.0	-7.3	AVG	
0.151	57.0	Line 1	65.9	-8.9	QP	
3.800	45.9	Neutral	56.0	-10.1	QP	
3.903	45.8	Line 1	56.0	-10.2	QP	
8.093	39.6	Neutral	50.0	-10.4	AVG	
3.559	45.3	Line 1	56.0	-10.7	QP	
0.179	43.5	Line 1	54.5	-11.0	AVG	
0.180	43.4	Neutral	54.5	-11.1	AVG	
3.903	34.6	Line 1	46.0	-11.4	AVG	
3.800	34.4	Neutral	46.0	-11.6	AVG	
6.444	38.4	Neutral	50.0	-11.6	AVG	
3.556	44.3	Neutral	56.0	-11.7	QP	
0.168	43.2	Neutral	55.1	-11.9	AVG	
0.185	42.2	Line 1	54.2	-12.0	AVG	
3.559	34.0	Line 1	46.0	-12.0	AVG	
0.185	42.0	Line 1	54.3	-12.3	AVG	
3.556	33.5	Neutral	46.0	-12.5	AVG	
7.191	46.1	Line 1	60.0	-13.9	QP	
6.444	43.3	Neutral	60.0	-16.7	QP	
8.093	42.8	Neutral	60.0	-17.2	QP	
0.151	33.2	Line 1	55.9	-22.7	AVG	

Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	B

Run #2: AC Power Port Conducted Emissions, 0.15 - 30MHz, 230V/50Hz





Client:	OQO	Job Number:	J68325
Model:	2050 and 2060	T-Log Number:	T68341
		Account Manager:	Susan Pelzl
Contact:	Bob Hymes		
Standard:	EN55022 / FCC	Class:	B

Run #2: AC Power Port Conducted Emissions, 0.15 - 30MHz, 230V/50Hz

Frequency	Level	AC	EN55022 A		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
7.866	40.8	Neutral	50.0	-9.2	AVG	
4.093	43.1	Neutral	56.0	-12.9	QP	
3.955	43.0	Neutral	56.0	-13.0	QP	
3.415	40.5	Neutral	56.0	-15.5	QP	
0.198	48.1	Neutral	63.7	-15.6	QP	
0.196	48.1	Neutral	63.8	-15.7	QP	
7.866	43.5	Neutral	60.0	-16.5	QP	
7.647	42.4	Neutral	60.0	-17.6	QP	
4.093	27.1	Neutral	46.0	-18.9	AVG	
0.196	34.6	Neutral	53.8	-19.2	AVG	
7.647	30.4	Neutral	50.0	-19.6	AVG	
3.955	25.9	Neutral	46.0	-20.1	AVG	
0.198	32.8	Neutral	53.7	-20.9	AVG	
3.415	23.8	Neutral	46.0	-22.2	AVG	

EXHIBIT 3: Photographs of Test Configurations

2 Pages

Uploaded as separate attachment

EXHIBIT 4: RF Exposure Information

Uploaded as separate attachment