EMC Test Report
Application for Grant of Equipment Authorization
pursuant to
Industry Canada RSS-Gen Issue 2 / RSS 210 Issue 7
FCC Part 15, Subpart E

Model: MVP-9000i

IC CERTIFICATION #:	5078B-MVP9
FCC ID:	CWU-MVP9
APPLICANT:	AMX 3000 Research Drive Richardson, TX 75080
TEST SITE(S):	Elliott Laboratories 41039 Boyce Road. Fremont, CA. 94538-2435
IC SITE REGISTRATION #:	2845B-4, 2845B-5, 2845B-7
REPORT DATE:	September 23, 2010
FINAL TEST DATES:	August 17, 21, 22, 25, 26, 30, 2010 and September 2, 2010

AUTHORIZED SIGNATORY:

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ACCREDITED
Testing Cert #2016.01

REVISION HISTORY

Rev#	Date	Comments	Modified By
-	09-21-2010	First release	

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SCOPE

An electromagnetic emissions test has been performed on the AMX model MVP-9000i, 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
FCC UNII test procedure 2002-08 DA-02-2138, August 2002

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.

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 AMX model MVP-9000i complied with the requirements of the following regulations:

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 modifications to the product should be assessed to determine their potential impact on the compliance status of the device with respect to the standards detailed in this test report.

The test results recorded herein are based on a single type test of AMX model MVP-9000i and therefore apply only to the tested sample. The sample was selected and prepared by Heath Sharp of AMX.

DEVIATIONS FROM THE STANDARDS

No deviations were made from the published requirements listed in the scope of this report.

TEST RESULTS SUMMARY

UNII / LELAN DEVICES

Operation in the 5.15 – 5.25 GHz Band

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.407(e)		Indoor operation only	Refer to user's manual	N/A	Complies
15.407(a) (1)		26dB Bandwidth	Limits output power if < 20MHz		N/A
15.407 (a) (1)	A9.2(1)	Output Power	802.11a: 0.015W (Max eirp: 46.8mW)	17dBm	Complies
15.407 (a) (1)	-	Power Spectral Density	0.7 dBm/MHz	4 dBm/MHz	Complies
-	A9.5 (2)			5 dBm/MHz	Complies
15.215(c)		20dB Bandwidth	20dB bandwidth is contained within the allocated band	20dB bandwidth shall be within the allocated band	Complies

Requirements for all U-NII/LELAN bands

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.407	A9.5a	Modulation	Digital Modulation is used	Digital modulation is required	Complies
15.407(b) (5) / 15.209	A9.3	Spurious Emissions below 1GHz	Note 1	Refer to page 20	Complies
15.407(b) (5) / 15.209	A9.3	Spurious Emissions above 1GHz	51.8dBµV/m @ 5133.6MHz		Complies (-2.2dB)
15.407(a)(6)	-	Peak Excursion Ratio	8.1dB	< 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	Complies
15			Measurements on three channels in each band		Complies
15.407 (c)	A9.5(4)	Operation in the absence of information to transmit	Operation is discontinued in the absence of information (refer to the Operational Description)	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 10ppm (measured 8ppm)	Signal shall remain in-band under all operating conditions	Complies
15.407 (h1)	A9.4	Transmit Power Control and Dynamic Frequency Selection	Device does not operate in either 5470 – 5725 or 5250 – 5350 MHz bands		N/A
15.407 (h2)					
	A9.9g	User Manual information for 5150-5250 MHz band	Refer to page 4 of the user's manual	Indoor Use Statement	Complies
Note 1: All emissions below 1GHz were evaluated against the requirements for a digital device. No emissions below 1GHz could be attributed to the transceiver circuitry.					

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	Antenna is integral to device.	Antenna is integral to device or uses a unique connector.	Complies
15.109	RSS GEN 7.2.3 Table 1	Receiver spurious emissions	43.9dBµV/m @ 1465.5MHz	Refer to page 19	Complies (-10.1dB) Note 1
15.207	RSS GEN Table 2	AC Conducted Emissions	39.8dBµV @ 3.621MHz	Refer to page 18	Complies (-6.2dB)
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 pages 4 and 18 of the manual	Statement required regarding non-interference	Complies
-	RSP 100 RSS GEN 7.1.5	User Manual	Not applicable, antennas are not detachable	Statement for products with detachable antenna	Complies
-	RSP 100 RSS GEN 4.4.1	99% Bandwidth	16900kHz	Information only	N/A

Note 1: All emissions below 1GHz were evaluated against the requirements for a digital device. No emissions below 1GHz could be attributed to the transceiver circuitry.

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	Measurement Unit	Frequency Range	Expanded Uncertainty
RF power, conducted (power meter)	dBm	25 to 7000 MHz	± 0.52 dB
RF power, conducted (Spectrum analyzer)	dBm	25 to 7000 MHz	± 0.7 dB
Conducted emission of transmitter	dBm	25 to 26500 MHz	± 0.7 dB
Conducted emission of receiver	dBm	25 to 26500 MHz	± 0.7 dB
Radiated emission (substitution method)	dBm	25 to 26500 MHz	± 2.5 dB
Radiated emission (field strength)	dBµV/m	25 to 1000 MHz	± 3.6 dB
		1000 to 40000 MHz	± 6.0 dB
Conducted Emissions (AC Power)	dBµV	0.15 to 30 MHz	± 2.4 dB

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The AMX model MVP-9000i is a flat screen display with various functions. It has an 802.11abg wireless interface (2400-2483.5 MHz, 5150-5250 MHz and 5725-5850MHz) which supports antenna diversity for both transmit and receive (different antennas on each antenna port but both antennas have a maximum gain of 5dBi in all three bands). The device can be used stand-alone or in a docking unit. The device has a mini-USB slot (for firmware updates) and a micro sd card slot. The electrical rating of the EUT is 12VDC, 4.0 Amps.

There are two docking stations, one is a table-stand and the other is wall-mounted. The docking stations, which are both powered via Power-Over-Ethernet (POE) provide additional USB interfaces for keyboard, mouse or memory cards. Although the docking stations would use the wired ethernet interface as the primary communications interface the MVP-9000i's wireless interface remains active to allow for immediate operation on removal from the docking station. The docking station comes with a short ethernet cable and instructions that this cable has to be used to connect to the PoE adapter.

In the docking station the device is fixed in orientation. Outside of the docking station the device would primarily be used in a standing orientation (an integral stand holds the device on a table top at a slight angle), however it could also be used held on a person's lap. The EUT was therefore tested for radiated emissions in three configurations – on its own, flat on the table top (to simulate laptop use); standing in the table-mount (angled at the same angle as when the device is used stand-alone); and in a fully upright position in the wall dock.

The sample was received on August 13, 2010 and tested on August 17, 21, 22, 25, 26, 30, 2010 and September 2, 2010. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number	FCC ID
AMX LLC	MVP-9000i	Modero ViewPoint Touch Panel with Intercom	N/A	CWU-MVP9

ANTENNA SYSTEM

The EUT has 2 antennas which provide spatial diversity (only one antenna is active at a time). The two antennas are integrated into the system, thereby meeting the requirements of FCC 15.203.

ENCLOSURE

The EUT enclosure is primarily constructed of plastic. It measures approximately 19.35 cm wide by 27.89 cm deep by 2.69 cm high.

MODIFICATIONS

No modifications were made to the EUT during the time the product was at Elliott.

SUPPORT EQUIPMENT

The following equipment was used as support equipment for testing:

Company	Model	Description	Serial Number	FCC ID
Dell	PP07L	Laptop PC	217901V0740006	DoC
AMX	MVP-TDS-9	Table Dock Station	-	N/A
AMX	MVP-WDS-9	Wall Docking Station	-	N/A

EUT INTERFACE PORTS

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

Stand Alone

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
EUT Mini-USB	Laptop Computer	Multi-wire	Shielded with ferrite beaded	1.8
Adapter AC Power	AC Mains	3 wire	-	-
EUT DC Power	AC-DC adapter	-	-	-

With Wall or Table Dock

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Mini-USB	Laptop Computer	Multi-wire	Shielded with ferrite beaded	1.8
Ethernet on Dock station	PoE Injector	CAT-5	Unshielded	3
PoE injector AC Power	AC Source	3 wire	Unshielded	1
Note – mini USB port was not accessible when device was installed in the wall dock. The device was configured for the appropriate test mode (power level, channel, 802.11a, b or g) via the mini-USB interface outside the dock then the cable was removed and the device was installed inside the dock for the measurements.				

EUT OPERATION

The EUT was operated via a test utility on the laptop that placed the device into a continuous transmit or receive mode on the appropriate operating channel. The data rates were 1Mb/s for 802.11b mode and 6Mb/s for 802.11a and 802.11g modes as these were the worst case (highest power) data rates in each mode. Both aux and main antennas were evaluated.

The device can be used in a stand-alone configuration or installed into docking stations. In stand-alone mode it would typically be used in a standing orientation (slightly angled) using its internal stand, but it could also be used flat, such as on someone's lap. The flat orientation was evaluated with the device in stand-alone configuration (i.e. not installed in a docking unit) for both radiated emissions and AC conducted emissions. The vertical orientation was evaluated for radiated spurious emissions with the device in both the wall dock (fully vertical) and in the table dock (at a similar angle to that created if using the internal stand). For all radiated emissions evaluations of the transceiver the laptop PC used to control the device was located beneath the test table.

TEST SITE

GENERAL INFORMATION

Final test measurements were taken at the test sites listed below. 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 and with industry Canada.

Site	Registration Numbers		Location
	FCC	Canada	
Chamber 7	211948	2845B-7	41039 Boyce Road Fremont, CA 94538-2435
Chamber 4	211948	2845B-4	
Chamber 5	211948	2845B-5	

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. The test site(s) contain 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 16-1-1 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.

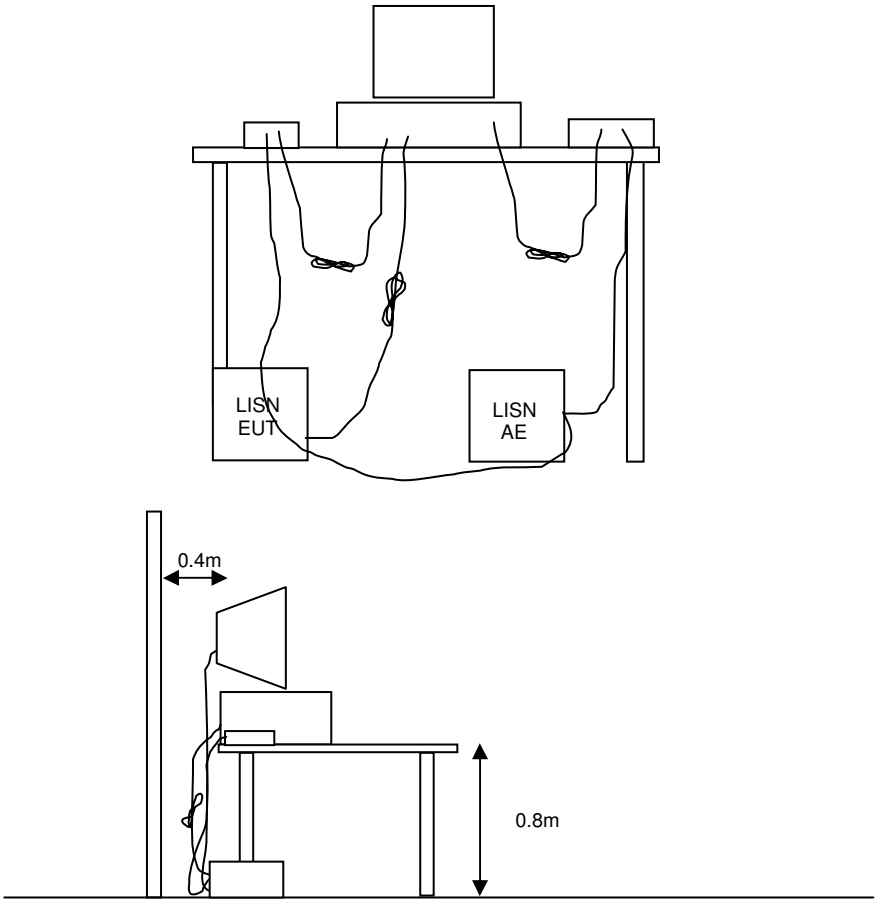
TEST PROCEDURES

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.



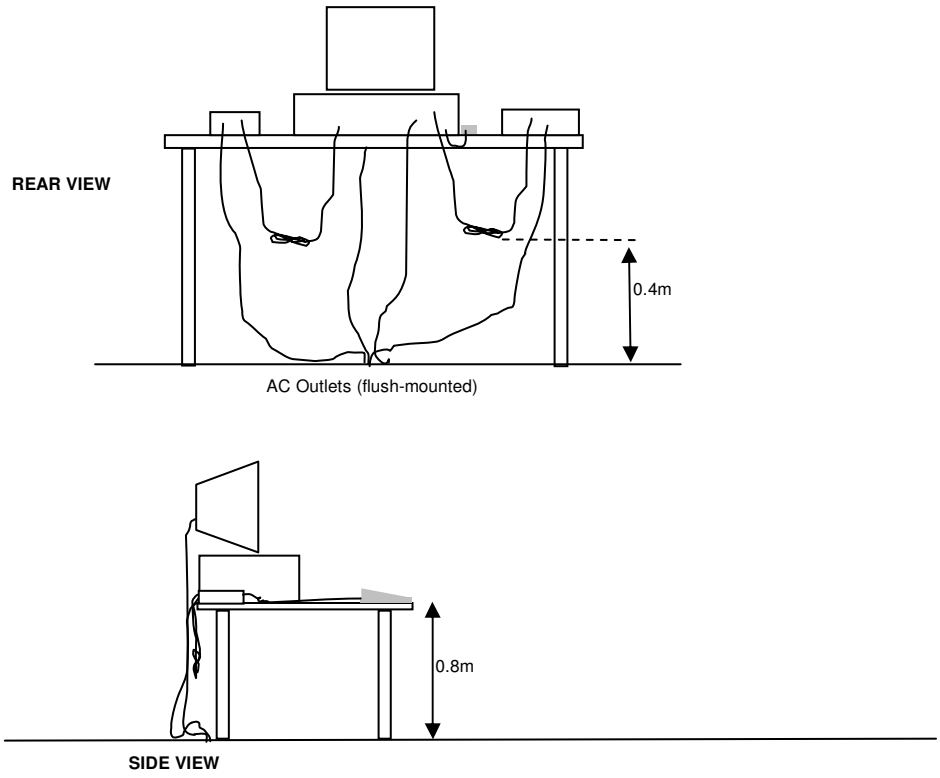
RADIATED EMISSIONS

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.

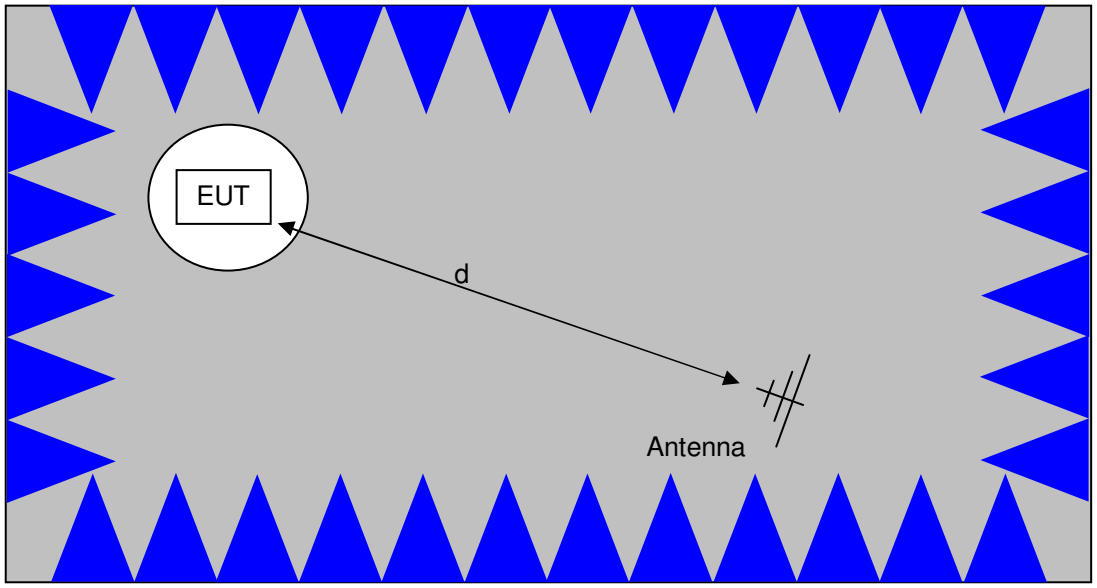
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

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.

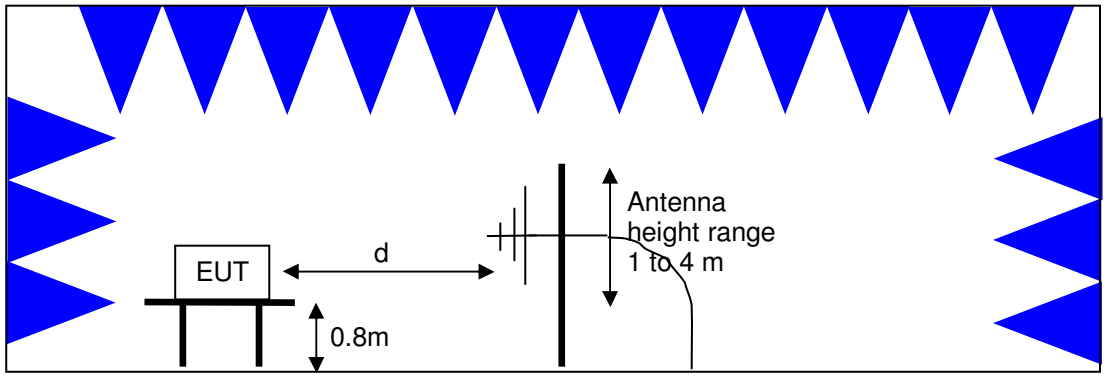


Typical Test Configuration for Radiated Field Strength Measurements



The anechoic materials on the walls and ceiling ensure compliance with the normalized site attenuation requirements of CISPR 16 / CISPR 22 / ANSI C63.4 for an alternate test site at the measurement distances used.

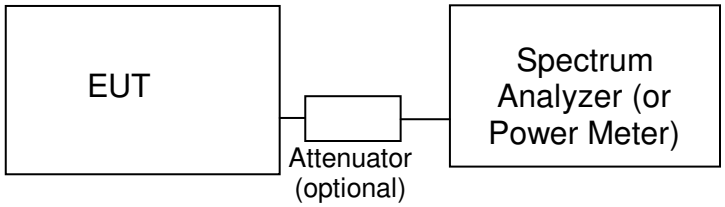
Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



Test Configuration for Radiated Field Strength Measurements
Semi-Anechoic Chamber, Plan and Side Views

CONDUCTED EMISSIONS FROM ANTENNA PORT

Direct measurements of power, bandwidth and power spectral density are performed, where possible, with the antenna port of the EUT connected to either the power meter or spectrum analyzer via a suitable attenuator and/or filter. These are used to ensure that the front end of the measurement instrument is not overloaded by the fundamental transmission.



Test Configuration for Antenna Port Measurements

Measurement bandwidths (video and resolution) are set in accordance with the relevant standards and Elliott's test procedures for the type of radio being tested. When power measurements are made using a resolution bandwidth less than the signal bandwidth the power is calculated by summing the power across the signal bandwidth using either the analyzer channel power function or by capturing the trace data and calculating the power using software. In both cases the summed power is corrected to account for the equivalent noise bandwidth (ENBW) of the resolution bandwidth used.

If power averaging is used (typically for certain digital modulation techniques), the EUT is configured to transmit continuously. Power averaging is performed using either the built-in function of the analyzer or, if the analyzer does not feature power averaging, using external software. In both cases the average power is calculated over a number of sweeps (typically 100). When the EUT cannot be configured to continuously transmit then either the analyzer is configured to perform a gated sweep to ensure that the power is averaged over periods that the device is transmitting or power averaging is disabled and a max-hold feature is used.

If a power meter is used to make output power measurements the sensor head type (peak or average) is stated in the test data table.

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.

SPECIFICATION LIMITS AND SAMPLE CALCULATIONS

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

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

FCC 15.407 (a) OUTPUT POWER LIMITS

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
5150 – 5250	50mW (17 dBm)	4 dBm/MHz

For system using antennas with gains exceeding 6dBi, the output power and power spectral density limits are reduced by 1dB for every dB the antenna gain exceeds 6dBi. Fixed point-to-point applications using the 5725 – 5825 MHz band may use antennas with gains of up to 23dBi without this limitation. If the gain exceeds 23dBi then the output power limit of 1 Watt is reduced by 1dB for every dB the gain exceeds 23dBi.

The peak excursion envelope is limited to 13dB.

OUTPUT POWER LIMITS –LELAN DEVICES

The table below shows the limits for output power and output power density defined by RSS 210. 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
5150 – 5250	200mW (23 dBm) eirp	10 dBm/MHz eirp

In addition, the power spectral density limit shall be reduced by 1dB for every dB the highest power spectral density exceeds the “average” power spectral density) by more than 3dB. The “average” power spectral density is determined by dividing the output power by 10log(EBW) where EBW is the 99% power bandwidth.

Fixed point-to-point applications using the 5725 – 5825 MHz band may use antennas with gains of up to 23dBi without this limitation. If the gain exceeds 23dBi then the output power limit of 1 Watt is reduced by 1dB for every dB the gain exceeds 23dBi.

SPURIOUS EMISSIONS LIMITS –UNII and LELAN DEVICES

The spurious emissions limits for signals below 1GHz are the FCC/RSS-GEN general limits. For emissions above 1GHz, signals in restricted bands are subject to the FCC/RSS GEN general limits. All other signals have a limit of –27dBm/MHz, which is a field strength of 68.3dBuV/m/MHz at a distance of 3m. This is an average limit so the peak value of the emission may not exceed –7dBm/MHz (68.3dBuV/m/MHz at a distance of 3m). For devices operating in the 5725-5850Mhz bands under the LELAN/UNII rules, the limit within 10Mhz of the allocated band is increased to –17dBm/MHz.

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

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 d (meters) from the equipment under test:

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

where P is the eirp (Watts)

For a measurement at 3m the conversion from a logarithmic value for field strength (dBuV/m) to an eirp power (dBm) is -95.3dB.

Appendix A Test Equipment Calibration Data

Radiated Emissions, UNII Spurs, 22-Aug-10

Manufacturer	Description	Model	Asset #	Cal Due
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	263	12/15/2010
EMCO	Antenna, Horn, 1-18 GHz	3115	487	7/6/2012
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	785	5/26/2011
EMCO	Antenna, Horn, 1-18GHz	3115	868	6/8/2012
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	6/25/2011
Hewlett Packard	Head (Inc W1-W4, 1143, 2198) Red	84125C	1145	1/13/2011
Hewlett Packard	SpecAn 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	7/12/2011
EMCO	Antenna, Horn, 1-18 GHz (SA40-Blu)	3115	1386	9/2/2010
Hewlett Packard	High Pass filter, 8.2 GHz (Blu System)	P/N 84300-80039 (84125C)	1392	5/17/2011
Hewlett Packard	SpecAn 9 kHz - 40 GHz, FT (SA40) Blue	8564E (84125C)	1393	4/14/2011
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	6/22/2012
Micro-Tronics	Band Reject Filter, 5725-5875 MHz	BRC50705-02	1728	2/1/2011
Micro-Tronics	Band Reject Filter, 5150-5350 MHz	BRC50703-02	1729	9/25/2010
Hewlett Packard	High Pass filter, 8.2 GHz (Purple System)	P/N 84300-80039 (84125C)	1767	11/4/2010
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40) Purple	8564E (84125C)	1771	6/30/2011
Hewlett Packard	Head (Inc W1-W4, 1946, 1947) Purple	84125C	1772	5/6/2011
A.H. Systems	Blue System Horn, 18-40GHz	SAS-574, p/n: 2581	2159	3/18/2011
A.H. Systems	Red System Horn, 18-40GHz	SAS-574, p/n: 2581	2161	3/5/2011

Radio Antenna Port (Power and Spurious Emissions), 02-Sep-10

Manufacturer	Description	Model	Asset #	Cal Due
Rohde & Schwarz	Power Meter, Single Channel	NRVS	1290	10/22/2010
Rohde & Schwarz	Power Sensor 100 uW - 10 Watts	NRV-Z53	1555	2/5/2011
Rohde & Schwarz	Attenuator, 20 dB , 50 ohm, 10W, DC-18 GHz	20dB, 10W, Type N	1556	2/5/2011
Agilent	PSA, Spectrum Analyzer, (installed options, 111, 115, 123, 1DS, B7J, HYX,	E4446A	2139	1/6/2011

Conducted Emissions - AC Power Ports, 22-Aug-10

Manufacturer	Description	Model	Asset #	Cal Due
Solar Electronics	LISN	8028-50-TS-24-BNC support	904	3/2/2011
Rohde & Schwarz	Pulse Limiter	ESH3 Z2	1401	4/20/2011
Fischer Custom Comm.	LISN, 50uH, 25 Amps, Dual Line	FCC-LISN-50/250-25-2-01	1575	4/19/2011
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1756	3/16/2011

Appendix B Test Data

T80241 39 Pages
T80309 (AC conducted emissions) 11 Pages

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		-
Emissions Standard(s):	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	B
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

AMX

Model

MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station

Date of Last Test: 9/7/2010

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

RSS 210 and FCC 15.407 (UNII) Radiated Spurious Emissions

Summary of Results

Run #	Mode	Channel	Power Setting	Antenna	Test Performed	Limit	Result / Margin
802.11a mode, EUT flat on table							
1	802.11a EUT Flat	#36 5180MHz	18	1	Radiated Spurious - Band Edge 5150 MHz	15.209 / RSS 210	51.6dBµV/m @ 5131.5MHz (-2.4dB)
			18	2	Radiated Spurious - Band Edge 5150 MHz	15.209 / RSS 210	51.7dBµV/m @ 5136.4MHz (-2.3dB)
802.11a mode, EUT in angled/upright position in table dock (representative of EUT standing on table with its integral stand and in table dock)							
2	802.11a EUT in table dock	#36 5180MHz	18	1	Radiated Spurious - Band Edge 5150 MHz	15.209 / RSS 210	51.7dBµV/m @ 5134.3MHz (-2.3dB)
			18	2	Radiated Spurious - Band Edge 5150 MHz	15.209 / RSS 210	51.7dBµV/m @ 5130.4MHz (-2.3dB)
802.11a mode, EUT fully upright position in wall dock (to evaluate wall dock's effect on panel's antennas)							
3	802.11a EUT in wall dock	#36 5180MHz	18	1	Radiated Spurious - Band Edge 5150 MHz	15.209 / RSS 210	**51.8dBµV/m @ 5133.6MHz (-2.2dB)**
			18	2	Radiated Spurious - Band Edge 5150 MHz	15.209 / RSS 210	51.7dBµV/m @ 5130.5MHz (-2.3dB)

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.

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: 22 °C
Rel. Humidity: 41 %

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:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Run #1, Radiated Spurious Emissions, 5150MHz Band Edge - EUT Flat

Date of Test: 8/17/2010
Test Engineer: Suresh Kondapalli
Test Location: FT chamber 7

Run #1a: #36, 5180MHz - Antenna 1

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5175.500	89.1	H	-	-	AVG	136	1.7	RB 1 MHz;VB 10 Hz;Pk
5176.300	97.4	H	-	-	PK	136	1.7	RB 1 MHz;VB 3 MHz;Pk
5178.570	91.0	V	-	-	AVG	162	1.2	RB 1 MHz;VB 10 Hz;Pk
5181.420	99.1	V	-	-	PK	162	1.2	RB 1 MHz;VB 3 MHz;Pk

5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5131.500	**51.6**	V	54.0	**-2.4**	AVG	176	1.3	RB 1 MHz;VB 10 Hz;Pk
5133.530	51.6	H	54.0	-2.4	AVG	117	1.2	RB 1 MHz;VB 10 Hz;Pk
5141.970	63.2	H	74.0	-10.8	PK	117	1.2	RB 1 MHz;VB 3 MHz;Pk
5133.600	62.7	V	74.0	-11.3	PK	176	1.3	RB 1 MHz;VB 3 MHz;Pk

Run #1b: #36, 5180MHz - Antenna 2

Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5180.100	92.3	H	-	-	AVG	276	1.4	RB 1 MHz;VB 10 Hz;Pk
5180.230	95.5	H	-	-	PK	276	1.4	RB 1 MHz;VB 3 MHz;Pk
5180.130	97.9	V	-	-	AVG	178	1.0	RB 1 MHz;VB 10 Hz;Pk
5180.200	101.4	V	-	-	PK	178	1.0	RB 1 MHz;VB 3 MHz;Pk

5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5136.430	**51.7**	V	54.0	**-2.3**	AVG	194	1.2	RB 1 MHz;VB 10 Hz;Pk
5148.900	51.7	H	54.0	-2.3	AVG	276	1.1	RB 1 MHz;VB 10 Hz;Pk
5144.100	63.7	V	74.0	-10.3	PK	194	1.2	RB 1 MHz;VB 3 MHz;Pk
5137.830	63.7	H	74.0	-10.3	PK	276	1.1	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Run #2, Radiated Spurious Emissions, 5150MHz Band Edge - EUT angled upright in table dock
Run #2a: #36, 5180MHz - Antenna 1
Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5180.030	101.8	H	-	-	AVG	360	1.0	RB 1 MHz;VB 10 Hz;Pk
5180.070	105.0	H	-	-	PK	360	1.0	RB 1 MHz;VB 3 MHz;Pk
5180.130	103.4	V	-	-	AVG	137	1.0	RB 1 MHz;VB 10 Hz;Pk
5180.070	106.7	V	-	-	PK	137	1.0	RB 1 MHz;VB 3 MHz;Pk

5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5134.300	**51.7**	H	54.0	**-2.3**	AVG	304	1.4	RB 1 MHz;VB 10 Hz;Pk
5130.130	51.6	V	54.0	-2.4	AVG	265	1.3	RB 1 MHz;VB 10 Hz;Pk
5131.530	64.7	H	74.0	-9.3	PK	304	1.4	RB 1 MHz;VB 3 MHz;Pk
5137.530	62.9	V	74.0	-11.1	PK	265	1.3	RB 1 MHz;VB 3 MHz;Pk

Run #2b: #36, 5180MHz - Antenna 2
Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5180.130	100.3	H	-	-	AVG	160	1.3	RB 1 MHz;VB 10 Hz;Pk
5180.170	103.7	H	-	-	PK	160	1.3	RB 1 MHz;VB 3 MHz;Pk
5180.100	98.9	V	-	-	AVG	342	1.3	RB 1 MHz;VB 10 Hz;Pk
5180.130	102.4	V	-	-	PK	342	1.3	RB 1 MHz;VB 3 MHz;Pk

5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5130.370	**51.7**	H	54.0	**-2.3**	AVG	314	1.2	RB 1 MHz;VB 10 Hz;Pk
5131.470	51.6	V	54.0	-2.4	AVG	334	1.2	RB 1 MHz;VB 10 Hz;Pk
5138.530	63.4	V	74.0	-10.6	PK	334	1.2	RB 1 MHz;VB 3 MHz;Pk
5135.130	63.2	H	74.0	-10.8	PK	314	1.2	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Run #3, Radiated Spurious Emissions, 5150MHz Band Edge - EUT upright in wall dock
Run #3a: #36, 5180MHz - Antenna 1
Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5180.100	104.9	V	-	-	AVG	348	1.3	RB 1 MHz;VB 10 Hz;Pk
5180.100	107.9	V	-	-	PK	348	1.3	RB 1 MHz;VB 3 MHz;Pk
5180.100	101.5	H	-	-	AVG	116	1.0	RB 1 MHz;VB 10 Hz;Pk
5180.030	104.5	H	-	-	PK	116	1.0	RB 1 MHz;VB 3 MHz;Pk

5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5133.570	**51.8**	V	54.0	**-2.2**	AVG	350	1.3	RB 1 MHz;VB 10 Hz;Pk
5133.230	51.7	H	54.0	-2.3	AVG	112	1.1	RB 1 MHz;VB 10 Hz;Pk
5138.070	63.7	H	74.0	-10.3	PK	112	1.1	RB 1 MHz;VB 3 MHz;Pk
5137.630	63.7	V	74.0	-10.3	PK	350	1.3	RB 1 MHz;VB 3 MHz;Pk

Run #3b: #36, 5180MHz - Antenna 2
Fundamental Signal Field Strength

Frequency	Level	Pol	15.209 / 15.247		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5180.100	93.8	V	-	-	AVG	194	1.0	RB 1 MHz;VB 10 Hz;Pk
5180.270	98.8	V	-	-	PK	194	1.0	RB 1 MHz;VB 3 MHz;Pk
5180.130	97.5	H	-	-	AVG	159	1.1	RB 1 MHz;VB 10 Hz;Pk
5180.300	102.1	H	-	-	PK	159	1.1	RB 1 MHz;VB 3 MHz;Pk

5150 MHz Band Edge Signal Radiated Field Strength

Frequency	Level	Pol	FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5130.500	**51.7**	H	54.0	**-2.3**	AVG	134	1.1	RB 1 MHz;VB 10 Hz;Pk
5132.870	51.6	V	54.0	-2.4	AVG	60	1.4	RB 1 MHz;VB 10 Hz;Pk
5141.270	63.3	H	74.0	-10.7	PK	134	1.1	RB 1 MHz;VB 3 MHz;Pk
5133.530	63.0	V	74.0	-11.0	PK	60	1.4	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

RSS 210 and FCC 15E (NII) Radiated Spurious Emissions

Summary of Results

Center channel scanned for both antennas in each configuration. Worst case antenna then evaluated on top and bottom channels.

Run #	Mode	Channel	Power Setting	Antenna	Test Performed	Limit	Result / Margin
EUT flat on table							
1a	802.11a	5200MHz (#40)	18	1	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15E	38.4dBµV/m @ 1063.5MHz (-15.6dB)
1b			18	2	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15E	38.7dBµV/m @ 1061.7MHz (-15.3dB)
1c	802.11a	5180 MHz (#36)	18	1	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15E	34.4dBµV/m @ 1067.4MHz (-19.6dB)
1d		5240 MHz (#48)	18	1	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15E	31.8dBµV/m @ 1079.9MHz (-36.5dB)
EUT in angled/upright position in table dock (note - no signficant differences in emissions between wall- and table-dock for operation in the NII band).							
2a	802.11a	5200MHz (#40)	18	1	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15E	37.5dBµV/m @ 1325.6MHz (-16.5dB)
2b			18	2	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15E	**40.6dBµV/m @ 1465.4MHz (-13.4dB)**
2c	802.11a	5180 MHz (#36)	18	2	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15E	32.5dBµV/m @ 1465.4MHz (-21.5dB)
2d		5240 MHz (#48)	18	2	Radiated Emissions, 1 - 40 GHz	FCC Part 15.209 / 15E	37.2dBµV/m @ 1157.0MHz (-16.8dB)

Note: Frequency 18 to 40GHz was scanned - no emissions were found above noise floor

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.

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: 23 °C
Rel. Humidity: 42 %

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

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.

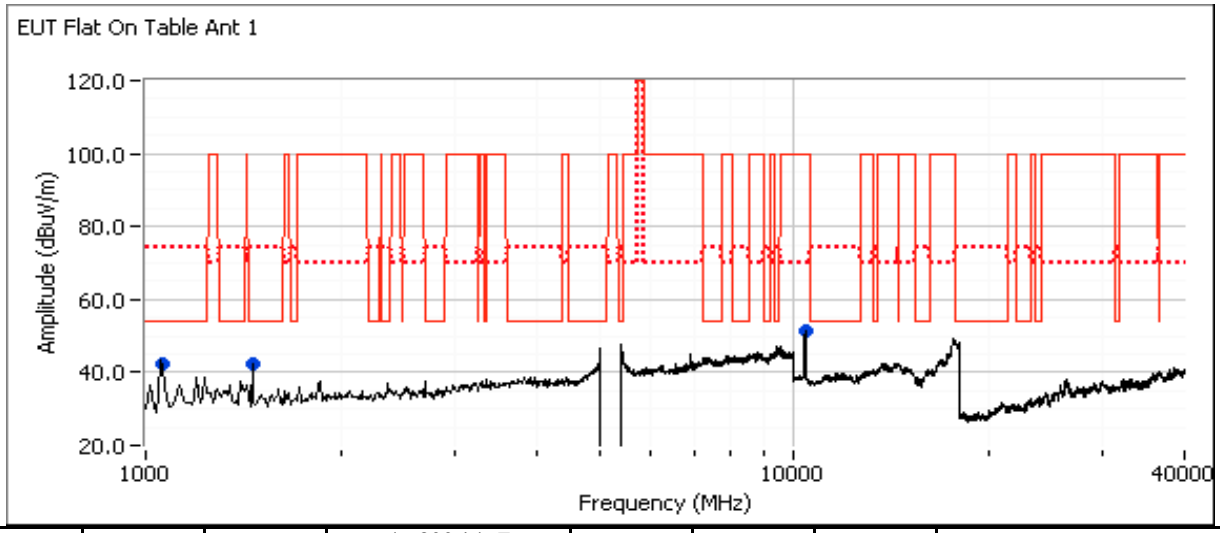
Run #1: Radiated Spurious Emissions, 1-40GHz Operating Mode: 802.11a mode, EUT Flat on table

Run #1a: Channel 40, 5200MHz 802.11a, Antenna 1

Date of Test: 8/22/2010

Test Engineer: Suresh Kondapalli

Test Location: FT Chamber #5



Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1063.510	**38.4**	V	54.0	**-15.6**	AVG	170	1.0	RB 1 MHz;VB 10 Hz;Pk
1457.600	30.5	V	54.0	-23.5	AVG	152	1.8	RB 1 MHz;VB 10 Hz;Pk
10402.250	44.7	V	68.3	-23.6	AVG	0	1.0	RB 1 MHz;VB 10 Hz;Pk
1061.980	47.7	V	74.0	-26.3	PK	170	1.0	RB 1 MHz;VB 3 MHz;Pk
10402.630	57.7	V	88.3	-30.6	PK	0	1.0	RB 1 MHz;VB 3 MHz;Pk
1458.550	40.3	V	74.0	-33.7	PK	152	1.8	RB 1 MHz;VB 3 MHz;Pk
5200.130	98.7	V	Note 2	-	Pk	113	1.6	RB 100 kHz;VB 100 kHz;Pk

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set at -27dBm/MHz eirp (68.3dBuV/m) average (88.3dBuV/m peak).
Note 2:	Fundamental signal level, measured in 100kHz, for reference purposes only.

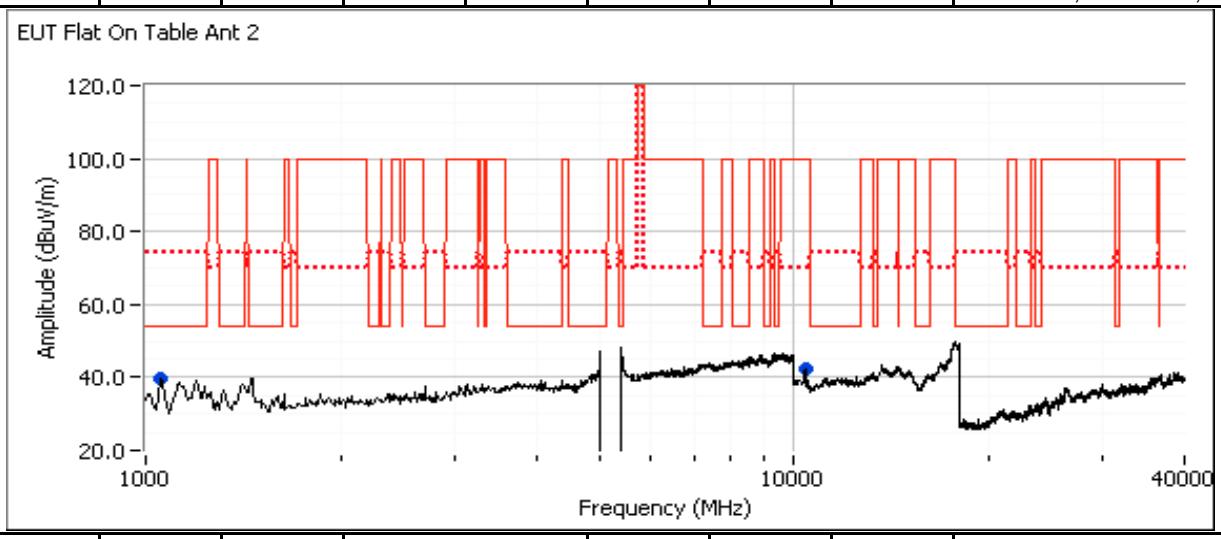
Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Run #1b: Channel 40, 5200MHz 802.11a, Antenna 2

Date of Test: 8/22/2010
Test Engineer: Suresh Kondapalli
Test Location: FT Chamber #5

Fundamental Signal Field Strength: Peak values measured in 100kHz (for reference only)

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5200.130	93.6	V	-	-	PK	114	1.4	RB 100 kHz;VB 100 kHz;Pk
5200.130	86.1	H	-	-	Pk	166	1.0	RB 100 kHz;VB 100 kHz;Pk



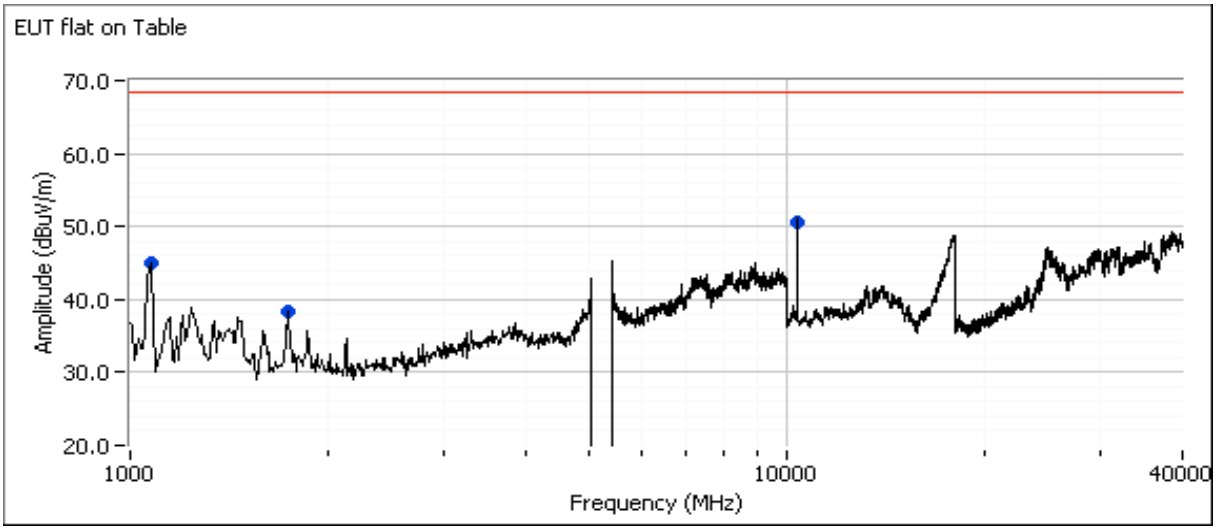
Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1061.650	**38.7**	V	54.0	**-15.3**	AVG	277	1.5	RB 1 MHz;VB 10 Hz;Pk
1061.660	53.1	V	74.0	-20.9	PK	277	1.5	RB 1 MHz;VB 3 MHz;Pk
10388.190	46.0	V	88.3	-42.3	PK	357	1.2	RB 1 MHz;VB 3 MHz;Pk
10388.690	34.1	V	68.3	-34.2	AVG	357	1.2	RB 1 MHz;VB 10 Hz;Pk

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set at -27dBm/MHz eirp (68.3dBuV/m) average (88.3dBuV/m peak).

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Run #1c: Channel 36, 5180MHz, 802.11a, Antenna 2

Date of Test: Aug 25, 210
Test Engineer: Suresh Kondapalli
Test Location: FT Chamber #5

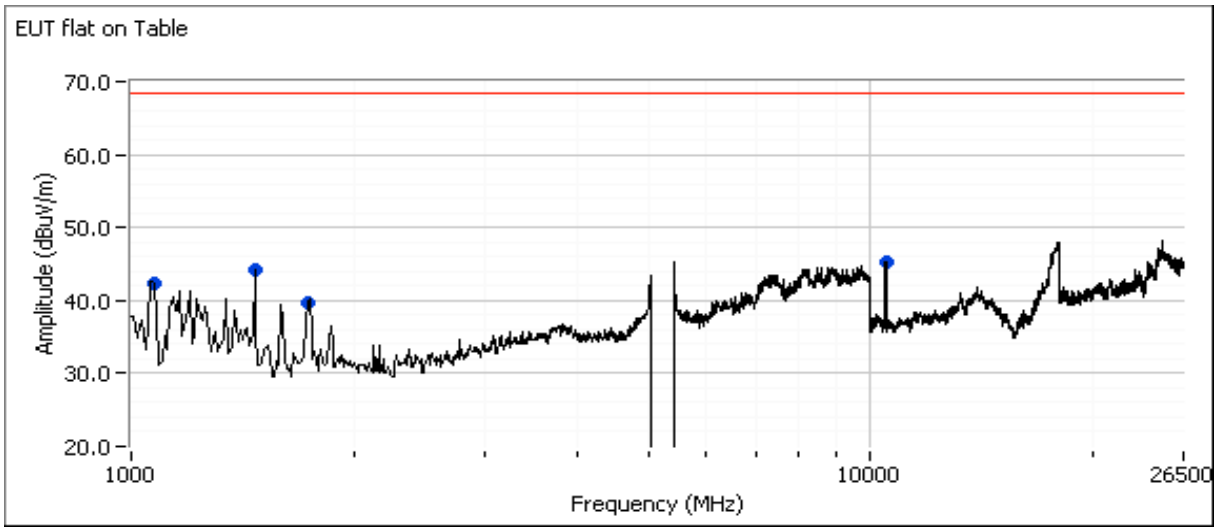


Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1067.440	34.4	H	54.0	**-19.6**	AVG	191	1.6	RB 1 MHz;VB 10 Hz;Pk
1065.530	43.6	H	74.0	-30.4	PK	191	1.6	RB 1 MHz;VB 3 MHz;Pk
1866.860	34.4	V	68.3	-33.9	AVG	101	1.1	RB 1 MHz;VB 10 Hz;Pk
1867.000	44.5	V	88.3	-43.8	PK	101	1.1	RB 1 MHz;VB 3 MHz;Pk
6912.030	36.5	V	68.3	-31.8	AVG	70	2.0	RB 1 MHz;VB 10 Hz;Pk
6913.830	47.7	V	88.3	-40.6	PK	70	2.0	RB 1 MHz;VB 3 MHz;Pk
10362.380	46.7	V	68.3	-21.6	AVG	352	1.0	RB 1 MHz;VB 10 Hz;Pk

Note 1: For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set at -27dBm/MHz eirp (68.3dBuV/m) average (88.3dBuV/m peak).

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Run #1d: Channel 48, 5240MHz, 802.11a, Antenna 2

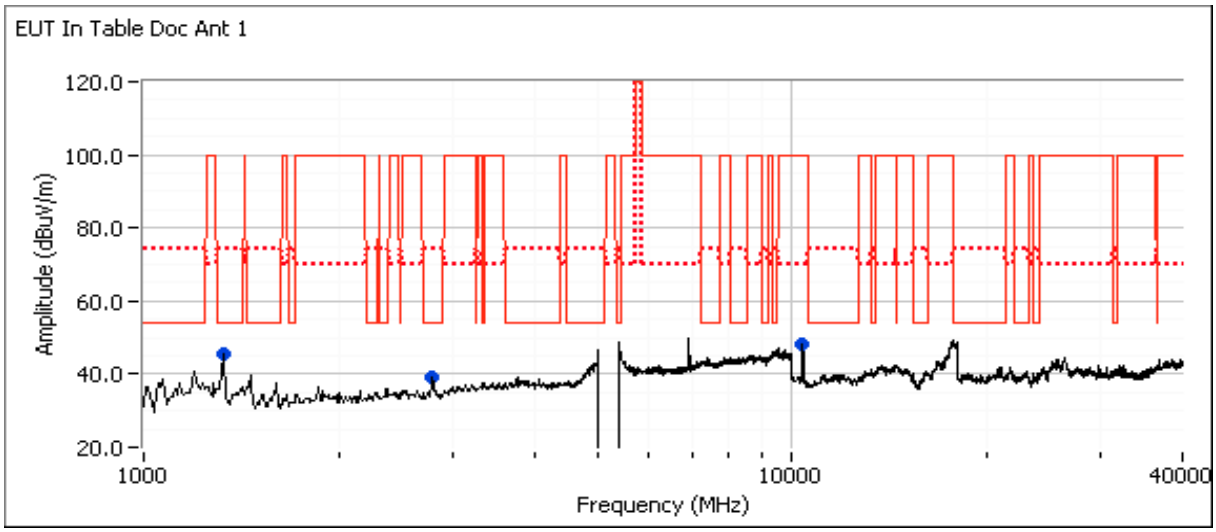


Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1079.910	31.8	V	68.3	-36.5	AVG	132	1.0	RB 1 MHz;VB 10 Hz;Pk
1463.550	29.6	V	68.3	-38.7	AVG	156	1.5	RB 1 MHz;VB 10 Hz;Pk
1737.160	35.2	V	68.3	-33.1	AVG	156	1.6	RB 1 MHz;VB 10 Hz;Pk
10491.840	34.1	V	68.3	-34.2	AVG	0	1.0	RB 1 MHz;VB 10 Hz;Pk

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set at -27dBm/MHz eirp (68.3dBuV/m) average (88.3dBuV/m peak).

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Test Engineer: Suresh Kondapalli
Test Location: FT Chamber #5



Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1325.630	**37.5**	V	54.0	**-16.5**	AVG	127	1.0	RB 1 MHz;VB 10 Hz;Pk
6933.380	52.7	V	88.3	-35.6	PK	200	1.4	RB 1 MHz;VB 3 MHz;Pk
10387.900	50.5	V	88.3	-37.8	PK	304	1.0	RB 1 MHz;VB 3 MHz;Pk
2794.080	30.0	H	54.0	-24.0	AVG	182	1.1	RB 1 MHz;VB 10 Hz;Pk
1323.570	44.7	V	74.0	-29.3	PK	127	1.0	RB 1 MHz;VB 3 MHz;Pk
2795.240	41.8	H	74.0	-32.2	PK	182	1.1	RB 1 MHz;VB 3 MHz;Pk
6933.440	46.6	V	68.3	-21.7	AVG	200	1.4	RB 1 MHz;VB 10 Hz;Pk
10387.820	37.6	V	68.3	-30.7	AVG	304	1.0	RB 1 MHz;VB 10 Hz;Pk

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set at -27dBm/MHz eirp (68.3dBuV/m) average (88.3dBuV/m peak).

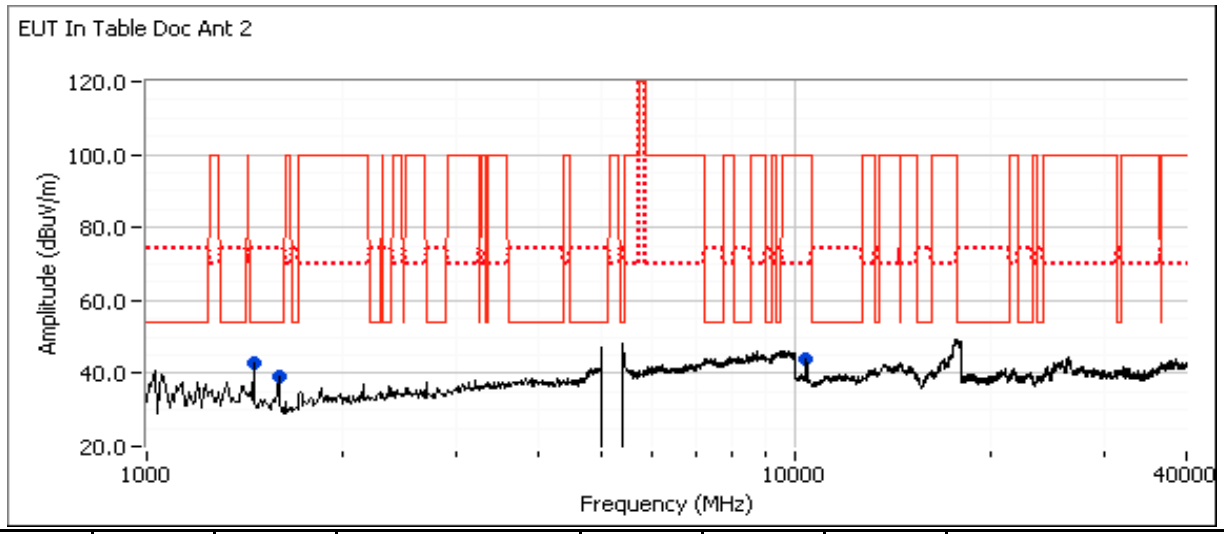
Fundamental Signal Field Strength: Peak values measured in 100kHz (for reference only)

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5200.170	106.2	V	-	-	PK	356	1.0	RB 100 kHz;VB 100 kHz;Pk
5200.200	101.0	H	-	-	Pk	0	1.3	RB 100 kHz;VB 100 kHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Run #2b: Channel 40, 5200MHz 802.11a, Antenna 2

Date of Test: 8/22/2010
Test Engineer: Suresh Kondapalli
Test Location: FT Chamber #5



Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1465.400	**40.6**	V	54.0	**-13.4**	AVG	142	1.0	RB 1 MHz;VB 10 Hz;Pk
10397.390	50.3	V	88.3	-38.0	PK	309	1.0	RB 1 MHz;VB 3 MHz;Pk
1604.590	27.7	V	54.0	-26.3	AVG	140	2.2	RB 1 MHz;VB 10 Hz;Pk
1465.400	42.8	V	74.0	-31.2	PK	142	1.0	RB 1 MHz;VB 3 MHz;Pk
1605.690	39.1	V	74.0	-34.9	PK	140	2.2	RB 1 MHz;VB 3 MHz;Pk
10398.750	39.1	V	68.3	-29.2	AVG	309	1.0	RB 1 MHz;VB 10 Hz;Pk

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set at -27dBm/MHz eirp (68.3dBuV/m) average (88.3dBuV/m peak).

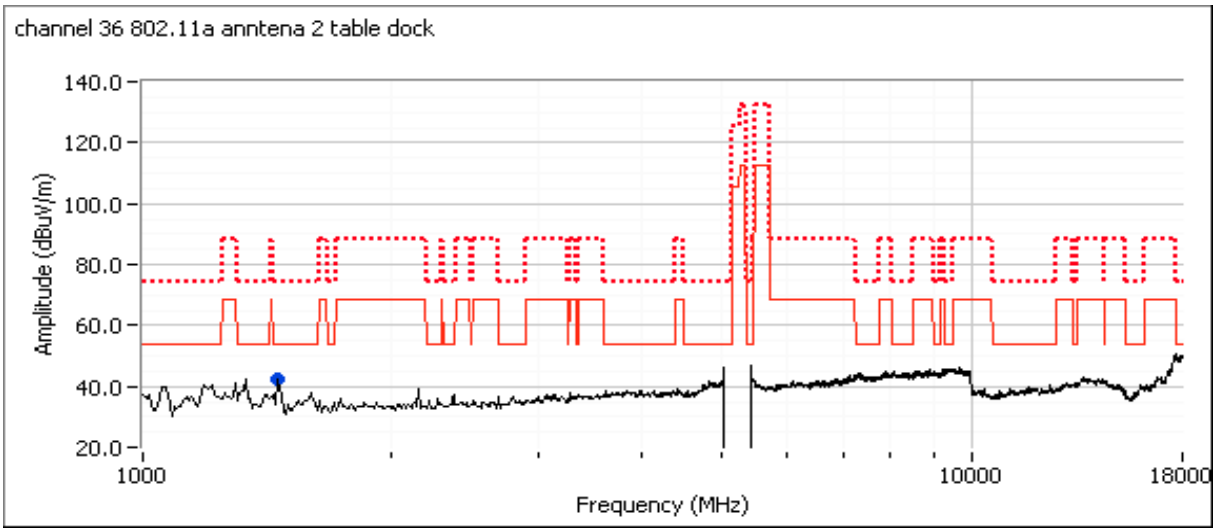
Fundamental Signal Field Strength: Peak values measured in 100kHz (for reference only)

Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5200.130	95.3	V	-	-	PK	168	1.5	RB 100 kHz;VB 100 kHz;Pk
5200.130	97.1	H	-	-	Pk	138	1.2	RB 100 kHz;VB 100 kHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Run #2c: Channel 36, 5180MHz, 802.11a, Antenna 2

Date of Test: 8/25/2010
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#5

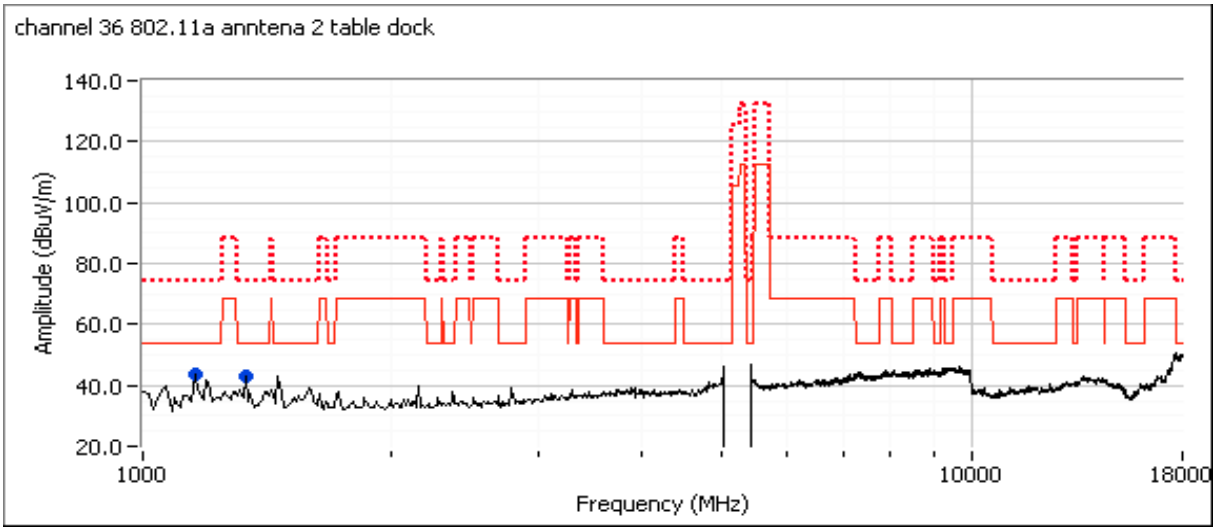


Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1465.420	**32.5**	V	54.0	**-21.5**	AVG	197	1.3	RB 1 MHz;VB 10 Hz;Pk
1464.350	35.7	V	74.0	-38.3	PK	197	1.3	RB 1 MHz;VB 3 MHz;Pk
Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set at -27dBm/MHz eirp (68.3dBuV/m) average (88.3dBuV/m peak).							

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Run #2d: Channel 48, 5240MHz, 802.11a, Antenna 2

Date of Test: 8/25/2010
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#5



Frequency	Level	Pol	15.209 / 15E		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1157.010	**37.2**	V	54.0	**-16.8**	AVG	210	1.3	RB 1 MHz;VB 10 Hz;Pk
1329.260	34.8	V	54.0	-19.2	AVG	239	1.3	RB 1 MHz;VB 10 Hz;Pk
1156.620	49.2	V	74.0	-24.8	PK	210	1.3	RB 1 MHz;VB 3 MHz;Pk
1330.640	43.4	V	74.0	-30.6	PK	239	1.3	RB 1 MHz;VB 3 MHz;Pk

Note 1:	For emissions in restricted bands, the limit of 15.209 was used. For all other emissions, the limit was set at -27dBm/MHz eirp (68.3dBuV/m) average (88.3dBuV/m peak).

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

RSS 210 - Receiver Radiated Spurious Emissions

Summary of Results

EUT tested on center frequency in each band. Frequency range 30 - 1000 MHz covered by digital device measurements, no spurious related directly to the receiver or transmitter were observed in that frequency range.

Run #	Mode	Channel	-	Antenna	Test Performed	Limit	Result / Margin
EUT flat on table							
1a	Receive	2437MHz		1	Radiated Emissions, 1 - 7.5 GHz	RSS 210 FCC 15.109	42.1dBµV/m @ 1062.8MHz (-11.9dB)
1b				2			
1c		5200MHz		1	Radiated Emissions, 1 - 18 GHz		39.3dBµV/m @ 1465.7MHz (-14.7dB)
1d				2			
1e		5785MHz		1			39.2dBµV/m @ 1465.9MHz (-14.8dB)
1f				2			
EUT in table dock							
2a	Receive	2437MHz		1	Radiated Emissions, 1 - 7.5 GHz	RSS 210 FCC 15.109	**43.9dBµV/m @ 1465.5MHz (-10.1dB)**
2b				2			
2c		5200MHz		1	Radiated Emissions, 1 - 18 GHz		**43.9dBµV/m @ 1465.5MHz (-10.1dB)**
2d				2			
2e		5785MHz		1			**41.1dBµV/m @ 1465.5MHz (-12.9dB)**
2f				2			
EUT in wall dock							
3a	Receive	2437MHz		1	Radiated Emissions, 1 - 7.5 GHz	RSS 210 FCC 15.109	40.5dBµV/m @ 1063.4MHz (-13.5dB)
3b				2			
3c		5200MHz		1	Radiated Emissions, 1 - 18 GHz		42.1dBµV/m @ 1465.5MHz (-11.9dB)
3d				2			
3e		5785MHz		1			40.9dBµV/m @ 1465.3MHz (-13.1dB)
3f				2			

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.

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.

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Ambient Conditions:

Temperature: 23 °C
Rel. Humidity: 42 %

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

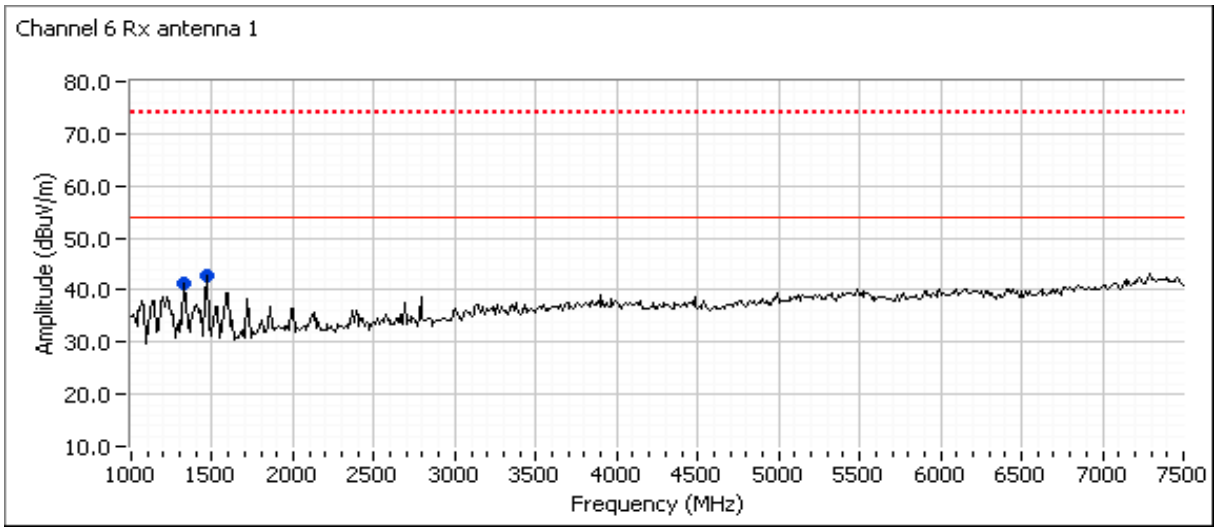
No deviations were made from the requirements of the standard.

Run #1: Radiated Spurious Emissions, Receive Mode - EUT Flat on Table

Date of Test: 8/26/2010
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#5

Run #1a: 2400-2483.5MHz center channel (2437MHz, #6), Antenna 1

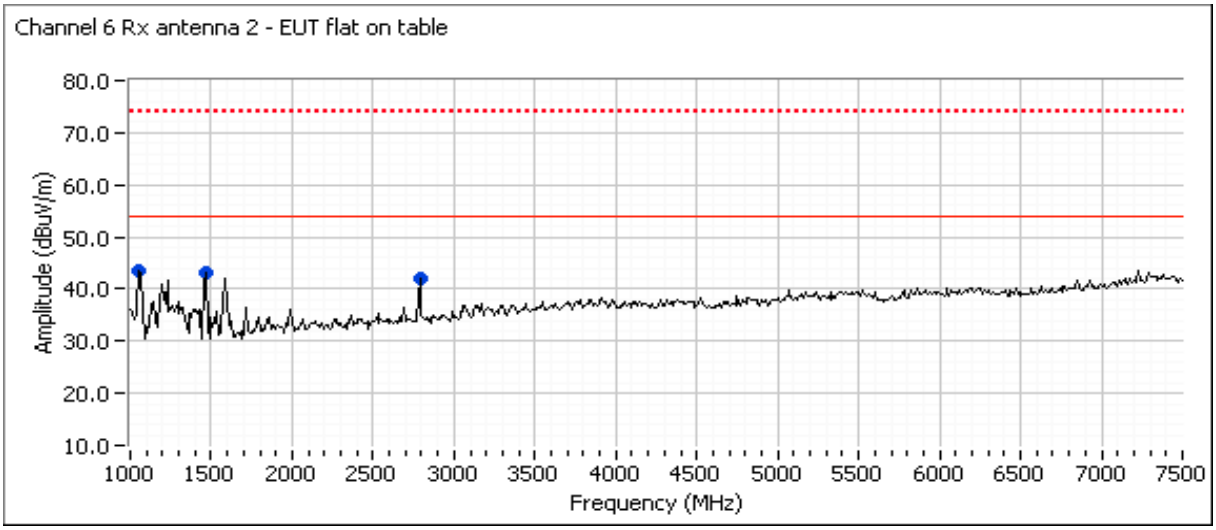
Frequency	Level	Pol	RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1328.500	**39.5**	V	54.0	**-14.5**	AVG	238	1.0	RB 1 MHz;VB 10 Hz;Pk
1465.970	38.8	H	54.0	-15.2	AVG	281	1.6	RB 1 MHz;VB 10 Hz;Pk
1328.710	49.2	V	74.0	-24.8	PK	238	1.0	RB 1 MHz;VB 3 MHz;Pk
1467.440	39.2	H	74.0	-34.8	PK	281	1.6	RB 1 MHz;VB 3 MHz;Pk



Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

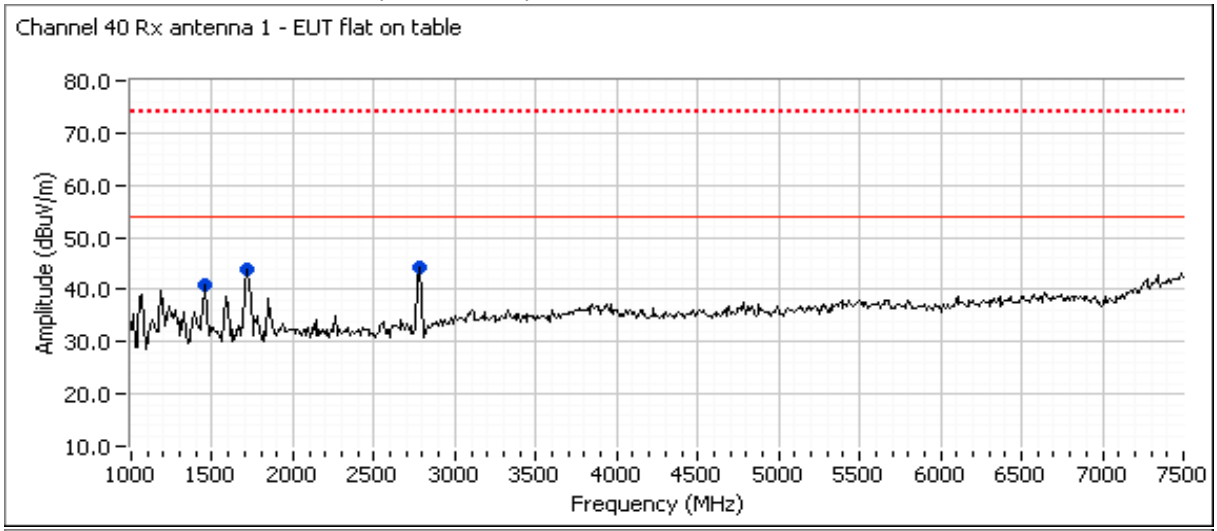
Run #1b: 2400-2483.5MHz center channel (2437MHz, #6), Antenna 2

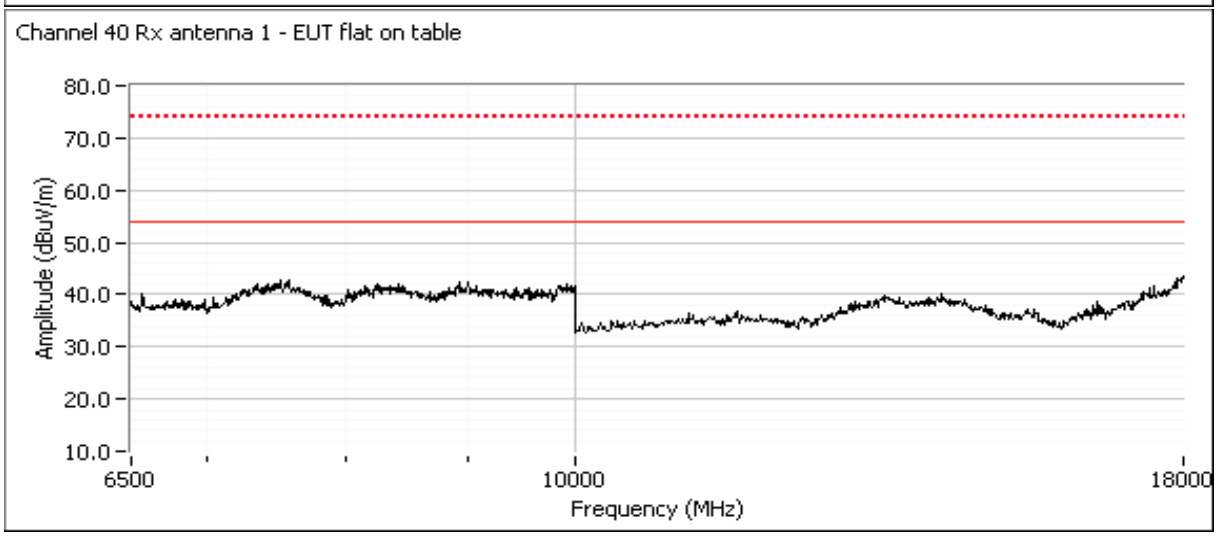
Frequency	Level	Pol	RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1062.770	**42.1**	V	54.0	**-11.9**	AVG	241	1.0	RB 1 MHz;VB 10 Hz;Pk
2786.220	30.0	V	54.0	-24.0	AVG	223	1.6	RB 1 MHz;VB 10 Hz;Pk
1062.400	48.7	V	74.0	-25.3	PK	241	1.0	RB 1 MHz;VB 3 MHz;Pk
1475.840	27.8	H	54.0	-26.2	AVG	285	1.6	RB 1 MHz;VB 10 Hz;Pk
2784.790	41.1	V	74.0	-32.9	PK	223	1.6	RB 1 MHz;VB 3 MHz;Pk
1473.810	38.4	H	74.0	-35.6	PK	285	1.6	RB 1 MHz;VB 3 MHz;Pk



Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Run #1c: 5150-5250 MHz center channel (5200MHz, #40), Antenna 1

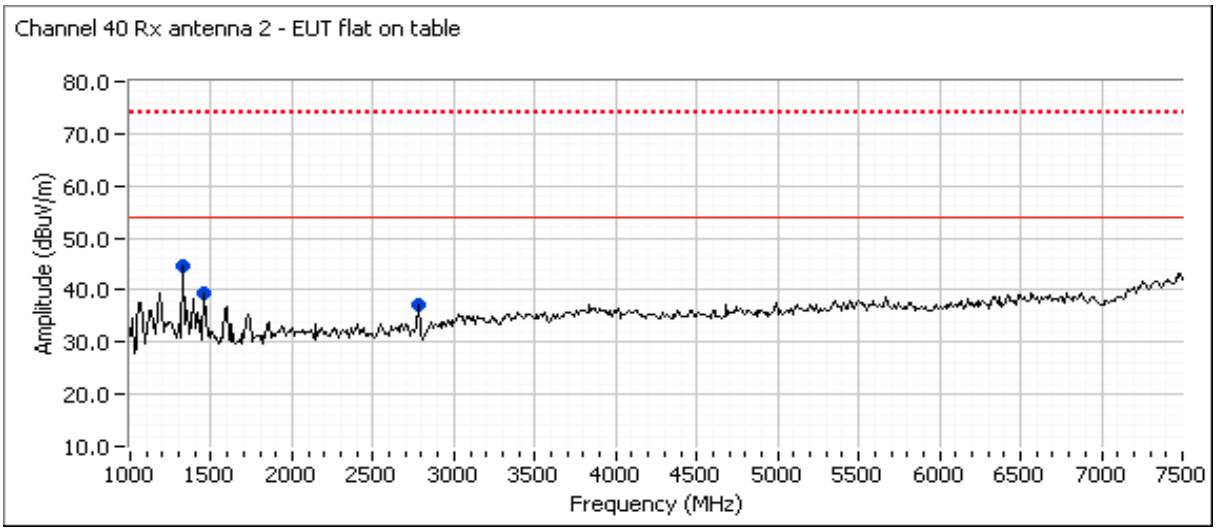


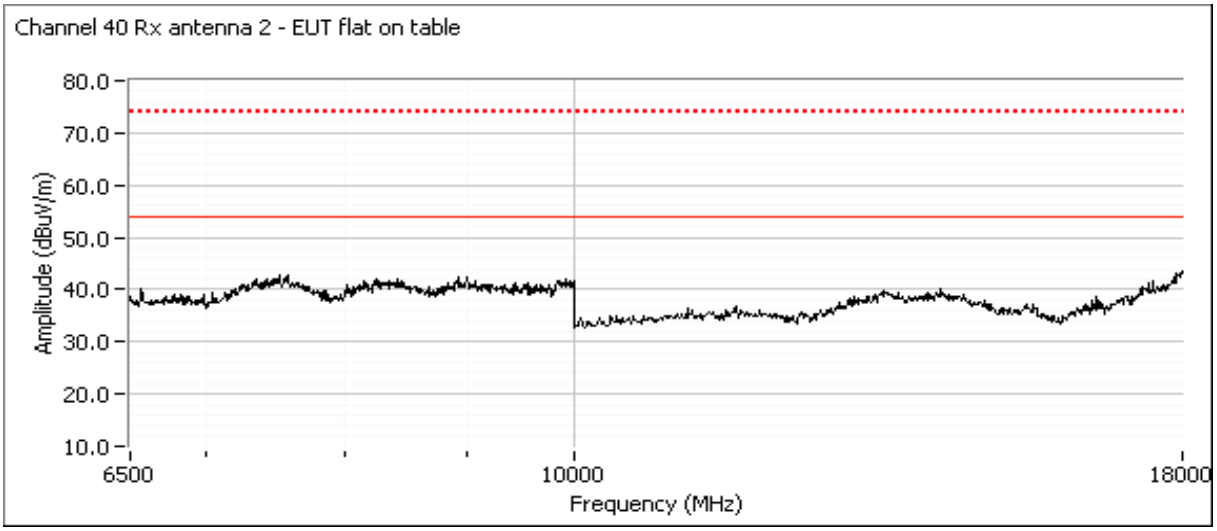


Frequency	Level	Pol	RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1465.650	**39.3**	H	54.0	**-14.7**	AVG	213	1.0	RB 1 MHz;VB 10 Hz;Pk
1715.180	33.6	H	54.0	-20.4	AVG	251	1.0	RB 1 MHz;VB 10 Hz;Pk
2780.590	30.9	H	54.0	-23.1	AVG	266	1.0	RB 1 MHz;VB 10 Hz;Pk
1464.450	44.2	H	74.0	-29.8	PK	213	1.0	RB 1 MHz;VB 3 MHz;Pk
2778.460	42.6	H	74.0	-31.4	PK	266	1.0	RB 1 MHz;VB 3 MHz;Pk
1715.670	41.2	H	74.0	-32.8	PK	251	1.0	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Run #1d: 5150-5250 MHz center channel (5200MHz, #40), Antenna 2

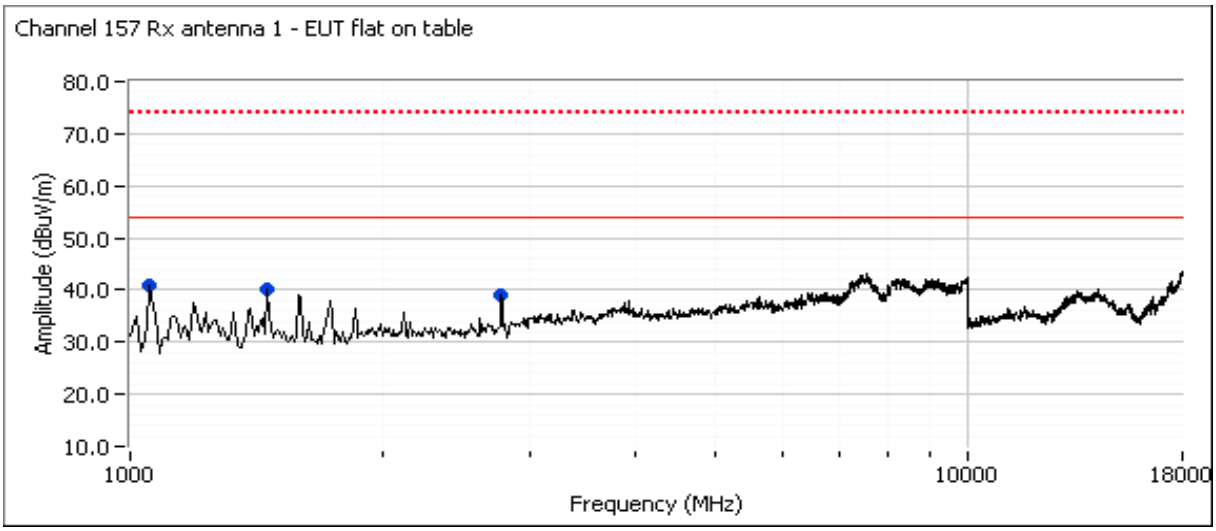




Frequency	Level	Pol	RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1465.330	**33.6**	V	54.0	**-20.4**	AVG	272	1.9	RB 1 MHz;VB 10 Hz;Pk
1327.820	33.4	V	54.0	-20.6	AVG	262	1.0	RB 1 MHz;VB 10 Hz;Pk
2775.900	28.1	H	54.0	-25.9	AVG	211	1.3	RB 1 MHz;VB 10 Hz;Pk
1326.720	42.4	V	74.0	-31.6	PK	262	1.0	RB 1 MHz;VB 3 MHz;Pk
2774.290	39.4	H	74.0	-34.6	PK	211	1.3	RB 1 MHz;VB 3 MHz;Pk
1464.090	37.0	V	74.0	-37.0	PK	272	1.9	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

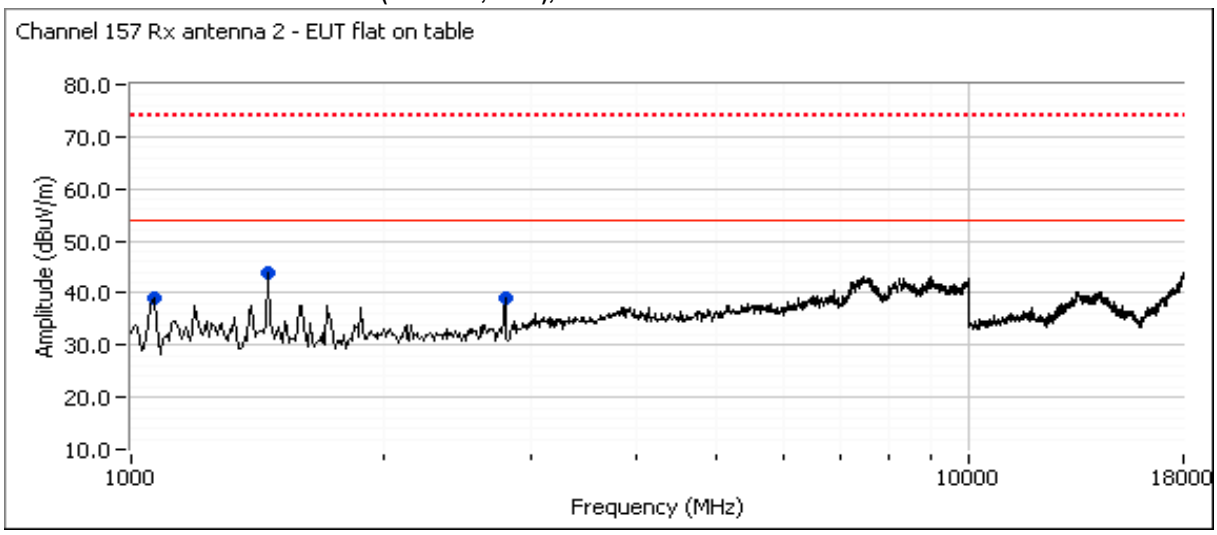
Run #1e: 5725-5850 MHz center channel (5785MHz, #157), Antenna 1



Frequency	Level	Pol	RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1465.890	**39.2**	V	54.0	**-14.8**	AVG	185	1.0	RB 1 MHz;VB 10 Hz;Pk
1062.150	30.4	V	54.0	-23.6	AVG	254	1.9	RB 1 MHz;VB 10 Hz;Pk
2778.150	28.6	H	54.0	-25.4	AVG	271	1.0	RB 1 MHz;VB 10 Hz;Pk
1465.550	44.2	V	74.0	-29.8	PK	185	1.0	RB 1 MHz;VB 3 MHz;Pk
2776.940	39.6	H	74.0	-34.4	PK	271	1.0	RB 1 MHz;VB 3 MHz;Pk
1062.840	39.0	V	74.0	-35.0	PK	254	1.9	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Run #1f: 5725-5850 MHz center channel (5785MHz, #157), Antenna 2



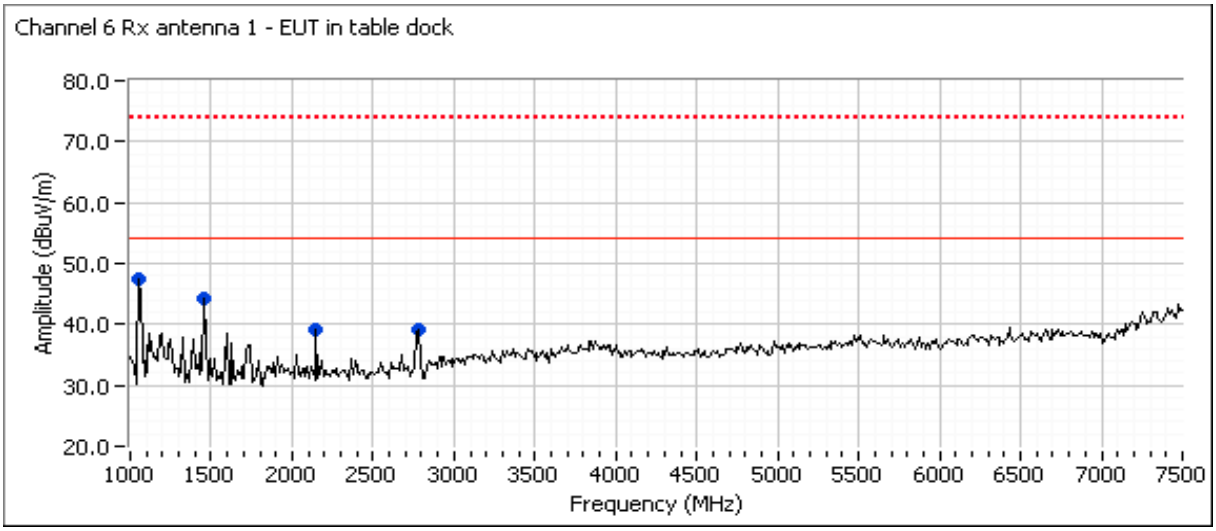
Frequency	Level	Pol	RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1058.190	**33.3**	V	54.0	**-20.7**	AVG	72	2.5	RB 1 MHz;VB 10 Hz;Pk
2789.350	32.6	V	54.0	-21.4	AVG	137	1.5	RB 1 MHz;VB 10 Hz;Pk
2789.060	49.4	V	74.0	-24.6	PK	137	1.5	RB 1 MHz;VB 3 MHz;Pk
1456.460	29.0	V	54.0	-25.0	AVG	236	1.2	RB 1 MHz;VB 10 Hz;Pk
1059.680	41.9	V	74.0	-32.1	PK	72	2.5	RB 1 MHz;VB 3 MHz;Pk
1456.190	40.4	V	74.0	-33.6	PK	236	1.2	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Run #2: Radiated Spurious Emissions, Receive Mode - EUT in Table Dock

Date of Test: 8/30/2010
Test Engineer: Joseph Cadigal
Test Location: FT Chamber#4

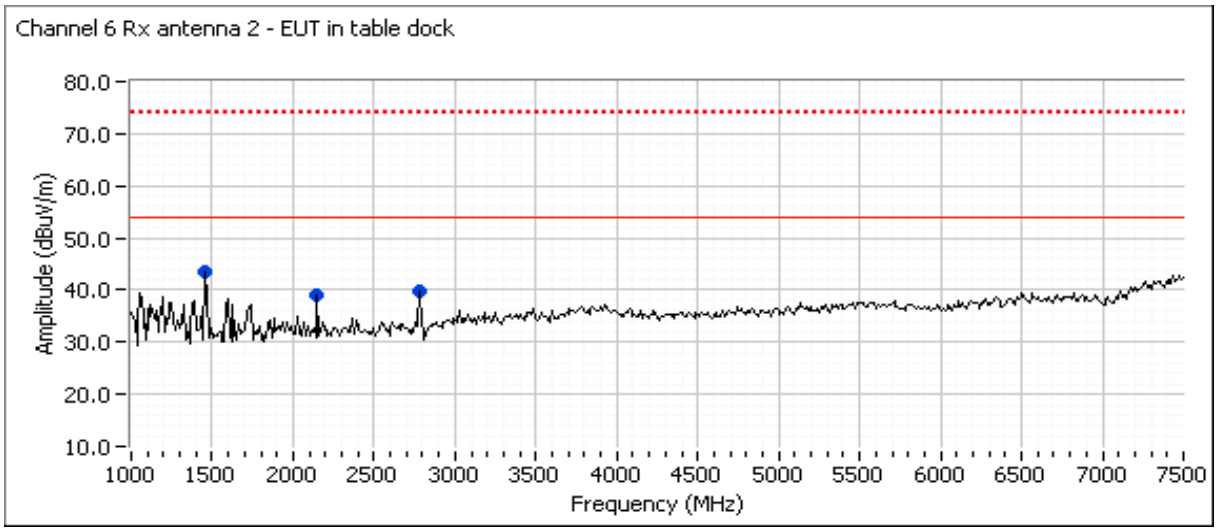
Run #2a: 2400-2483.5MHz center channel (2437MHz, #6), Antenna 1



Frequency	Level	Pol	RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1465.450	**43.9**	V	54.0	**-10.1**	AVG	241	1.3	RB 1 MHz;VB 10 Hz;Pk
2778.450	30.8	V	54.0	-23.2	AVG	177	1.0	RB 1 MHz;VB 10 Hz;Pk
1048.900	29.5	H	54.0	-24.5	AVG	217	1.0	RB 1 MHz;VB 10 Hz;Pk
1465.330	47.3	V	74.0	-26.7	PK	241	1.3	RB 1 MHz;VB 3 MHz;Pk
2158.320	26.5	H	54.0	-27.5	AVG	187	1.0	RB 1 MHz;VB 10 Hz;Pk
2779.760	43.8	V	74.0	-30.2	PK	177	1.0	RB 1 MHz;VB 3 MHz;Pk
1048.550	37.9	H	74.0	-36.1	PK	217	1.0	RB 1 MHz;VB 3 MHz;Pk
2156.760	36.9	H	74.0	-37.1	PK	187	1.0	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

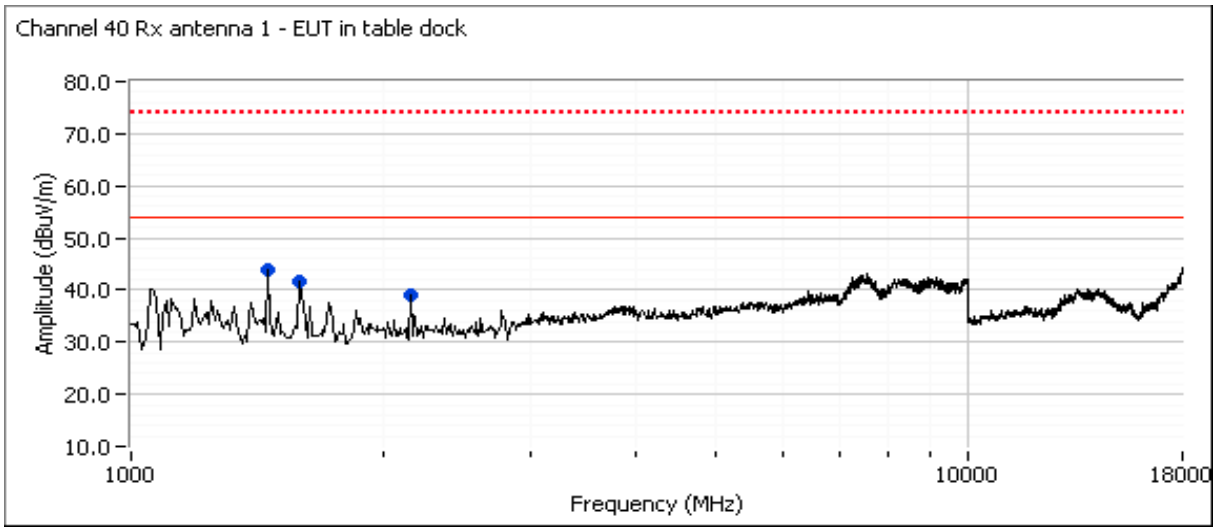
Run #2b: 2400-2483.5MHz center channel (2437MHz, #6), Antenna 2



Frequency	Level	Pol	RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1465.450	**43.3**	V	54.0	**-10.7**	AVG	238	1.2	RB 1 MHz;VB 10 Hz;Pk
2787.880	35.0	V	54.0	-19.0	AVG	129	1.0	RB 1 MHz;VB 10 Hz;Pk
2786.040	48.2	V	74.0	-25.8	PK	129	1.0	RB 1 MHz;VB 3 MHz;Pk
1465.420	46.7	V	74.0	-27.3	PK	238	1.2	RB 1 MHz;VB 3 MHz;Pk
2136.260	26.3	H	54.0	-27.7	AVG	175	1.3	RB 1 MHz;VB 10 Hz;Pk
2137.000	37.4	H	74.0	-36.6	PK	175	1.3	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

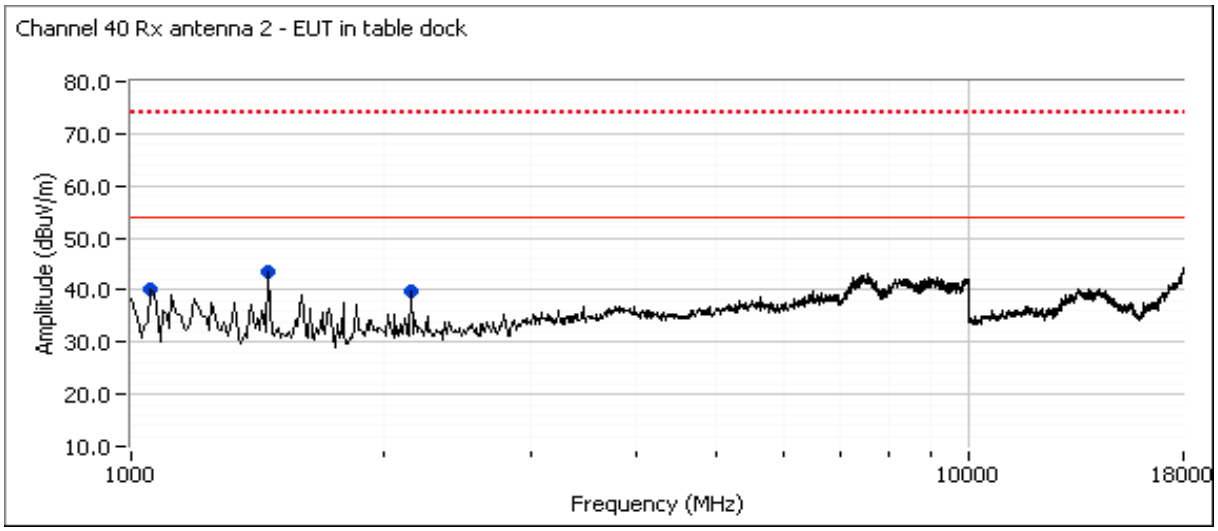
Run #2c: 5150-5250 MHz center channel (5200MHz, #40), Antenna 1



Frequency	Level	Pol	RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1465.500	**43.2**	V	54.0	**-10.8**	AVG	235	1.3	RB 1 MHz;VB 10 Hz;Pk
2159.980	38.5	H	54.0	-15.5	AVG	183	1.0	RB 1 MHz;VB 10 Hz;Pk
1596.410	32.5	H	54.0	-21.5	AVG	246	1.3	RB 1 MHz;VB 10 Hz;Pk
1465.580	47.1	V	74.0	-26.9	PK	235	1.3	RB 1 MHz;VB 3 MHz;Pk
2160.220	43.7	H	74.0	-30.3	PK	183	1.0	RB 1 MHz;VB 3 MHz;Pk
1594.490	41.3	H	74.0	-32.7	PK	246	1.3	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

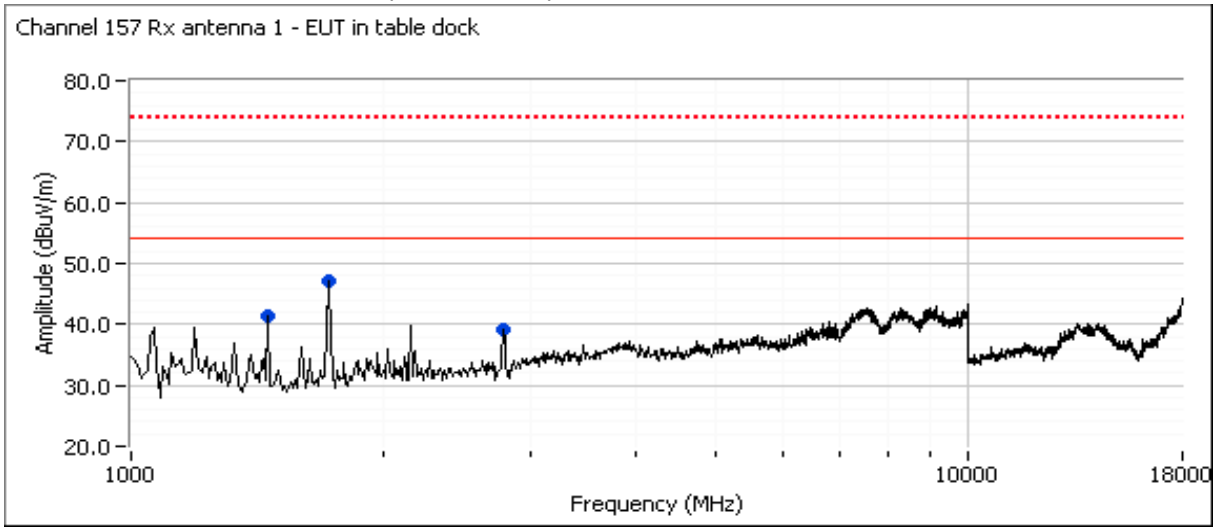
Run #2d: 5150-5250 MHz center channel (5200MHz, #40), Antenna 2



Frequency	Level	Pol	RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1465.460	**43.9**	V	54.0	**-10.1**	AVG	241	1.3	RB 1 MHz;VB 10 Hz;Pk
2160.030	37.3	H	54.0	-16.7	AVG	185	1.0	RB 1 MHz;VB 10 Hz;Pk
1049.390	33.4	V	54.0	-20.6	AVG	156	1.0	RB 1 MHz;VB 10 Hz;Pk
1465.480	48.2	V	74.0	-25.8	PK	241	1.3	RB 1 MHz;VB 3 MHz;Pk
2160.300	43.2	H	74.0	-30.8	PK	185	1.0	RB 1 MHz;VB 3 MHz;Pk
1048.320	42.7	V	74.0	-31.3	PK	156	1.0	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

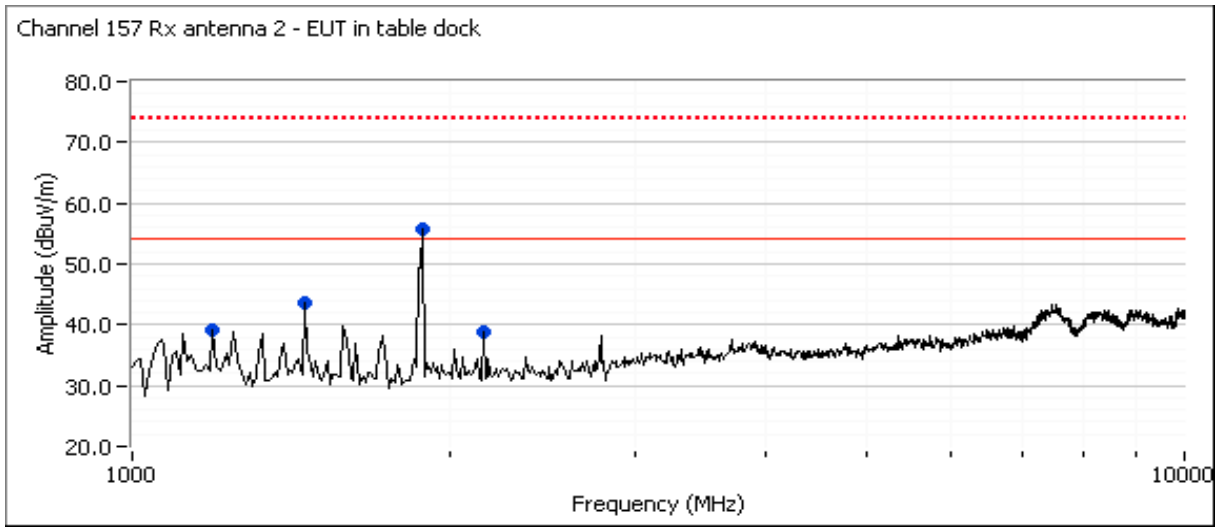
Run #2e: 5725-5850 MHz center channel (5785MHz, #257), Antenna 1



Frequency	Level	Pol	RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
2160.040	**37.0**	H	54.0	**-17.0**	AVG	185	1.3	RB 1 MHz;VB 10 Hz;Pk
1714.220	28.0	V	54.0	-26.0	AVG	109	1.0	RB 1 MHz;VB 10 Hz;Pk
1466.080	26.4	V	54.0	-27.6	AVG	230	1.3	RB 1 MHz;VB 10 Hz;Pk
2159.940	42.7	H	74.0	-31.3	PK	185	1.3	RB 1 MHz;VB 3 MHz;Pk
1714.680	40.1	V	74.0	-33.9	PK	109	1.0	RB 1 MHz;VB 3 MHz;Pk
1464.650	37.0	V	74.0	-37.0	PK	230	1.3	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Run #2f: 5725-5850 MHz center channel (5785MHz, #257), Antenna 2

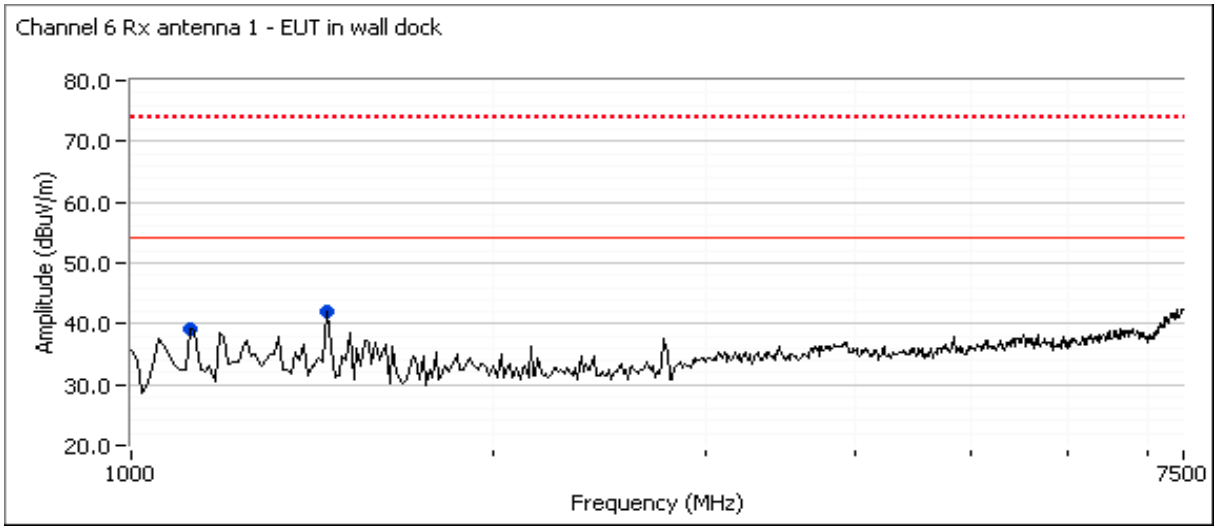


Frequency	Level	Pol	RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1465.470	**41.1**	V	54.0	**-12.9**	AVG	197	1.3	RB 1 MHz;VB 10 Hz;Pk
2160.050	37.4	H	54.0	-16.6	AVG	174	1.6	RB 1 MHz;VB 10 Hz;Pk
1199.030	36.4	H	54.0	-17.6	AVG	234	1.3	RB 1 MHz;VB 10 Hz;Pk
1882.290	26.5	H	54.0	-27.5	AVG	64	1.0	RB 1 MHz;VB 10 Hz;Pk
1465.390	44.7	V	74.0	-29.3	PK	197	1.3	RB 1 MHz;VB 3 MHz;Pk
2159.940	43.2	H	74.0	-30.8	PK	174	1.6	RB 1 MHz;VB 3 MHz;Pk
1199.000	43.1	H	74.0	-30.9	PK	234	1.3	RB 1 MHz;VB 3 MHz;Pk
1883.100	37.8	H	74.0	-36.2	PK	64	1.0	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Run #3: Radiated Spurious Emissions, Receive Mode - EUT in Table Dock

Date of Test: 8/30/2010
Test Engineer: Rafael Varelas
Test Location: FT Chamber#4

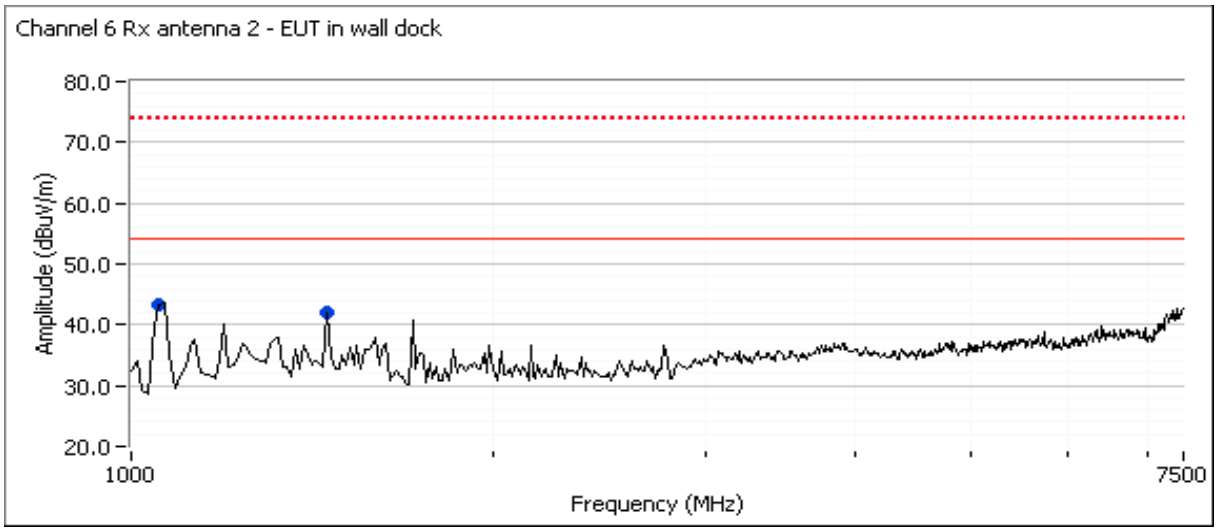


Run #3a: 2400-2483.5MHz center channel (2437MHz, #6), Antenna 1

Frequency	Level	Pol	RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1465.490	**40.4**	V	54.0	**-13.6**	AVG	275	1.8	RB 1 MHz;VB 10 Hz;Pk
1126.410	34.0	V	54.0	-20.0	AVG	184	1.0	RB 1 MHz;VB 10 Hz;Pk
1129.010	43.4	V	74.0	-30.6	PK	184	1.0	RB 1 MHz;VB 3 MHz;Pk
1465.460	43.1	V	74.0	-30.9	PK	275	1.8	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

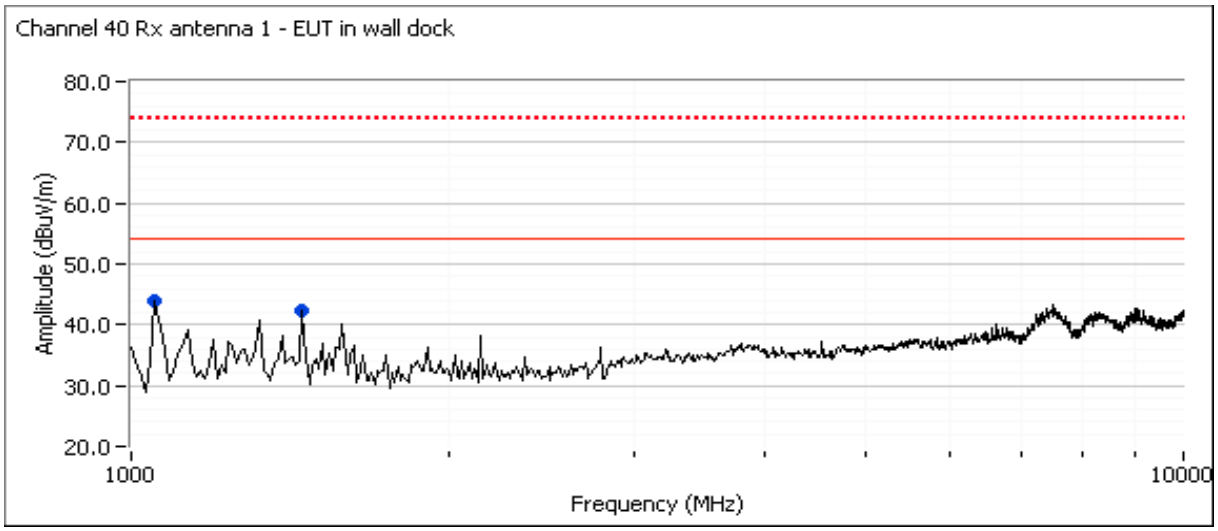
Run #3b: 2400-2483.5MHz center channel (2437MHz, #6), Antenna 2



Frequency	Level	Pol	RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1063.370	**40.5**	V	54.0	**-13.5**	AVG	168	1.0	RB 1 MHz;VB 10 Hz;Pk
1465.440	40.4	V	54.0	-13.6	AVG	256	1.4	RB 1 MHz;VB 10 Hz;Pk
1065.670	47.2	V	74.0	-26.8	PK	168	1.0	RB 1 MHz;VB 3 MHz;Pk
1465.470	43.8	V	74.0	-30.2	PK	256	1.4	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

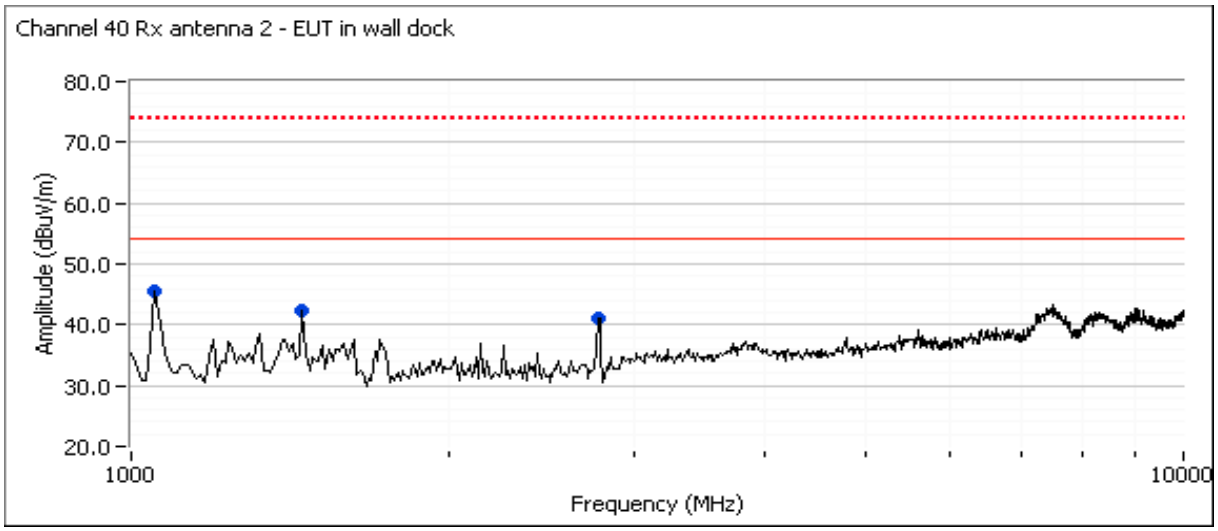
Run #3c: 5150-5250 MHz center channel (5200MHz, #40), Antenna 1



Frequency	Level	Pol	RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1465.520	**41.5**	V	54.0	**-12.5**	AVG	286	1.0	RB 1 MHz;VB 10 Hz;Pk
1074.530	29.8	H	54.0	-24.2	AVG	227	1.0	RB 1 MHz;VB 10 Hz;Pk
1465.390	45.0	V	74.0	-29.0	PK	286	1.0	RB 1 MHz;VB 3 MHz;Pk
1070.500	40.9	H	74.0	-33.1	PK	227	1.0	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

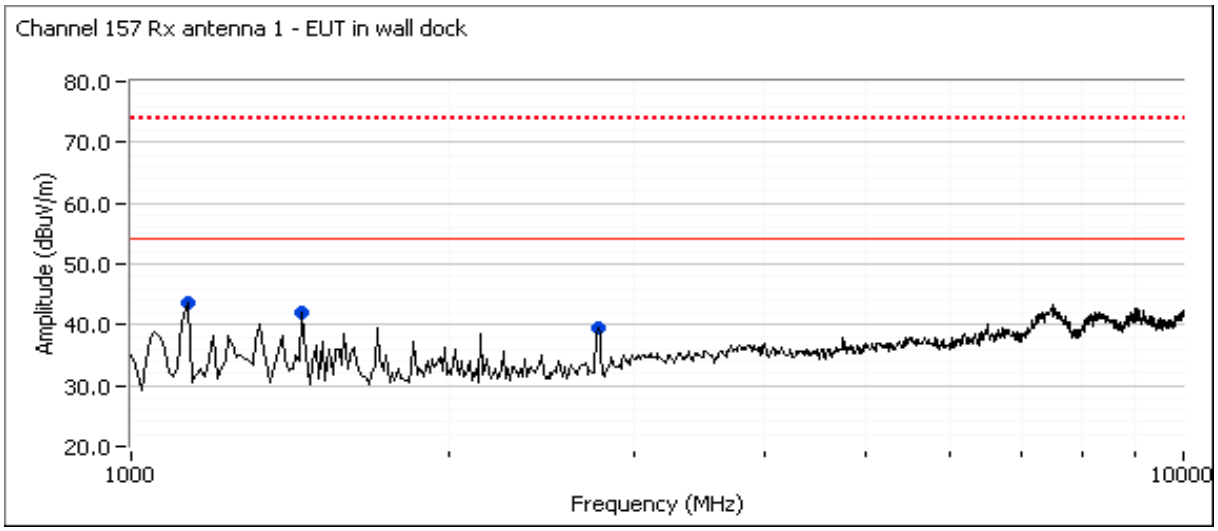
Run #3d: 5150-5250 MHz center channel (5200MHz, #40), Antenna 2



Frequency	Level	Pol	RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1465.520	**42.1**	V	54.0	**-11.9**	AVG	206	1.1	RB 1 MHz;VB 10 Hz;Pk
1071.320	34.3	V	54.0	-19.7	AVG	169	1.0	RB 1 MHz;VB 10 Hz;Pk
2799.390	30.9	V	54.0	-23.1	AVG	124	1.0	RB 1 MHz;VB 10 Hz;Pk
1073.090	50.7	V	74.0	-23.3	PK	169	1.0	RB 1 MHz;VB 3 MHz;Pk
1465.490	44.5	V	74.0	-29.5	PK	206	1.1	RB 1 MHz;VB 3 MHz;Pk
2797.850	40.1	V	74.0	-33.9	PK	124	1.0	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

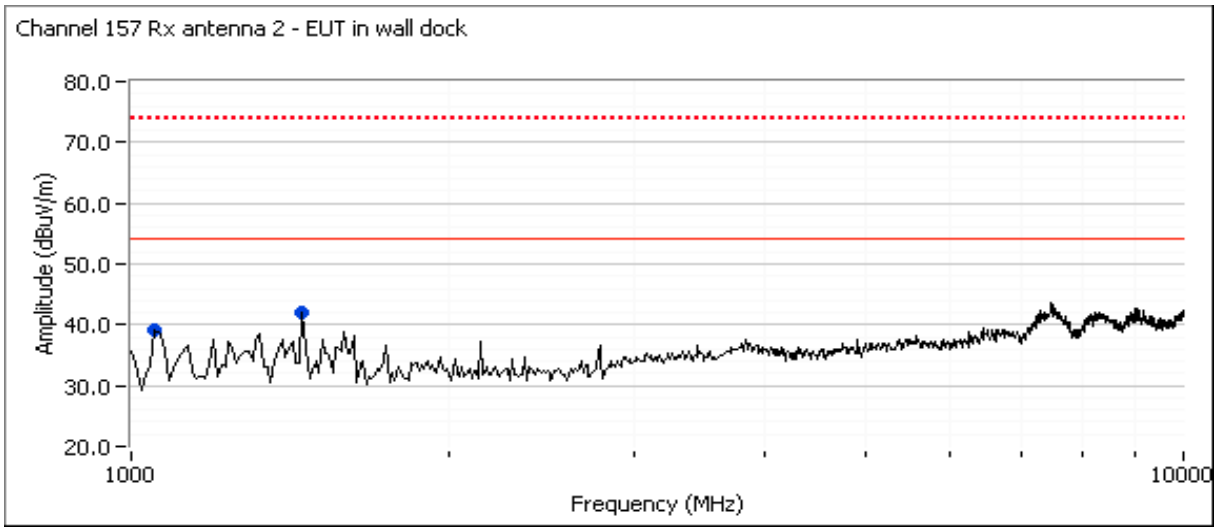
Run #3e: 5725-5850 MHz center channel (5785MHz, #157), Antenna 1



Frequency	Level	Pol	RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1465.520	**40.2**	V	54.0	**-13.8**	AVG	292	1.0	RB 1 MHz;VB 10 Hz;Pk
1130.550	33.9	V	54.0	-20.1	AVG	172	0.9	RB 1 MHz;VB 10 Hz;Pk
2807.990	29.6	H	54.0	-24.4	AVG	337	1.0	RB 1 MHz;VB 10 Hz;Pk
1465.460	44.5	V	74.0	-29.5	PK	292	1.0	RB 1 MHz;VB 3 MHz;Pk
1115.890	41.5	V	74.0	-32.5	PK	172	0.9	RB 1 MHz;VB 3 MHz;Pk
2802.920	39.7	H	74.0	-34.3	PK	337	1.0	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Run #3f: 5725-5850 MHz center channel (5785MHz, #157), Antenna 2



Frequency	Level	Pol	RSS 210		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
1465.320	**40.9**	V	54.0	**-13.1**	AVG	201	1.1	RB 1 MHz;VB 10 Hz;Pk
1080.050	31.0	V	54.0	-23.0	AVG	96	1.2	RB 1 MHz;VB 10 Hz;Pk
1465.490	43.8	V	74.0	-30.2	PK	201	1.1	RB 1 MHz;VB 3 MHz;Pk
1080.250	37.2	V	74.0	-36.8	PK	96	1.2	RB 1 MHz;VB 3 MHz;Pk

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

RSS-210 (LELAN) and FCC 15.407(UNII)
Antenna Port Measurements
Power, PSD, Peak Excursion, Bandwidth and Spurious 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: 9/2/2010 3:09
Test Engineer: Rafael Varelas
Test Location: Fremont EMC Lab #4
Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

Summary of Results

Run #	Test Performed	Limit	Pass / Fail	Result / Margin
1	Power, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	802.11a: 14.8 mW
1	PSD, 5150 - 5250MHz	15.407(a) (1), (2)	Pass	802.11a: 0.7 dBm/MHz
1	26dB Bandwidth	15.407	-	> 20MHz for all modes
1	99% Bandwidth	RSS 210	N/A	802.11a: 16.9 MHz
2	Peak Excursion Envelope	15.407(a) (6)	Pass	8.1dB
3	Antenna Conducted - Out of Band Spurious	15.407(b) -27dBm/MHz	Pass	All emissions below the -27dBm/MHz limit

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 to allow for the external attenuators and cables used.

Ambient Conditions:

Temperature: 22.4 °C
Rel. Humidity: 43 %

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:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

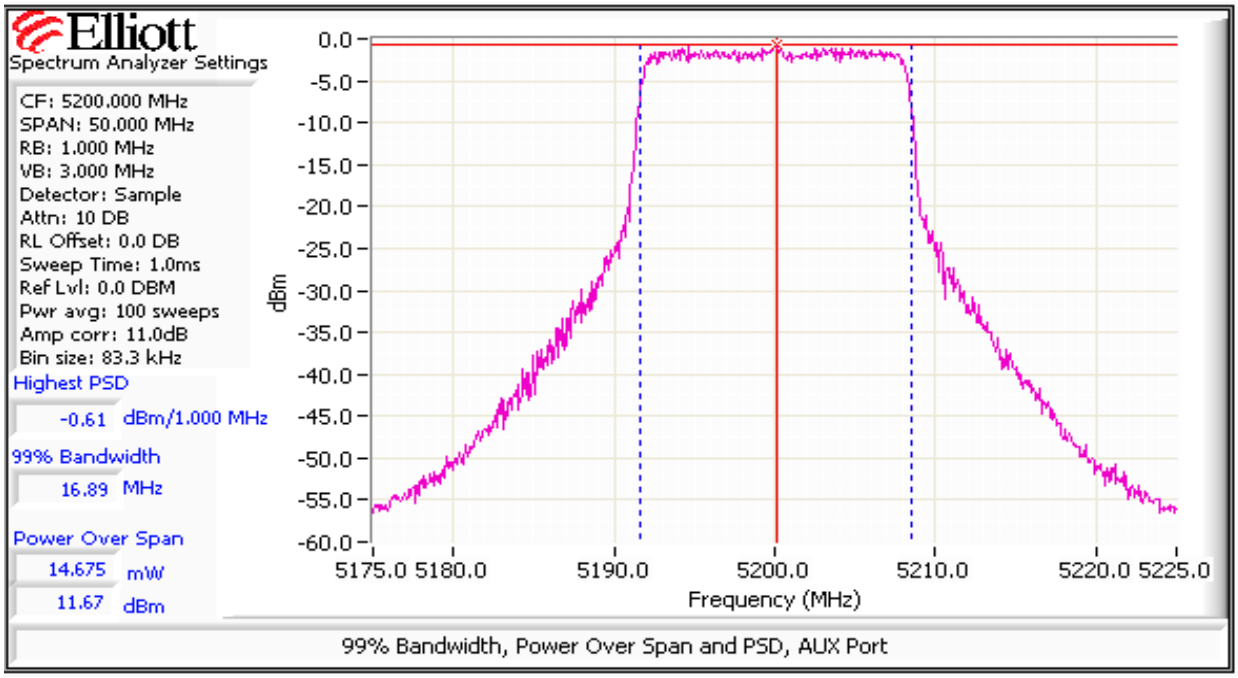
Run #1: Bandwidth, Output Power and Power Spectral Density - Single Chain Systems

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 **40** MHz (method 1 of DA-02-2138A1).
Note 2:	Measured using the same analyzer settings used for output power.
Note 3:	For RSS-210 the limit for the 5150 - 5250 MHz band accounts for the antenna gain as the maximum eirp allowed is 10dBm/MHz. The limits are also corrected for instances where the highest measured value of the PSD exceeds the average PSD (calculated from the measured power divided by the measured 99% bandwidth) by more than 3dB by the amount that the measured value exceeds the average by more than 3dB.
Note 4:	99% Bandwidth measured in accordance with RSS GEN - RB > 1% of span and VB >=3xRB

Single Chain Operation, 5150-5250MHz Band

Antenna Gain (dBi): 5 EIRP: 46.8 mW 16.7 dBm

Frequency (MHz)	Software Setting	Bandwidth 26dB	Bandwidth 99%[4]	Output Power[1] dBm Measured	Output Power[1] dBm Limit	Power (Watts)	PSD[2] dBm/MHz Measured	PSD[2] dBm/MHz FCC Limit	PSD[2] dBm/MHz RSS Limit[3]	Result
802.11a										
5180	18.0	25.8	16.9	11.6	17.0	0.014	-0.7	4.0	5.0	Pass
5200	18.0	25.3	16.9	**11.7**	17.0	0.015	-0.6	4.0	5.0	Pass
5240	18.0	24.5	16.9	11.5	17.0	0.014	**0.7**	4.0	5.0	Pass

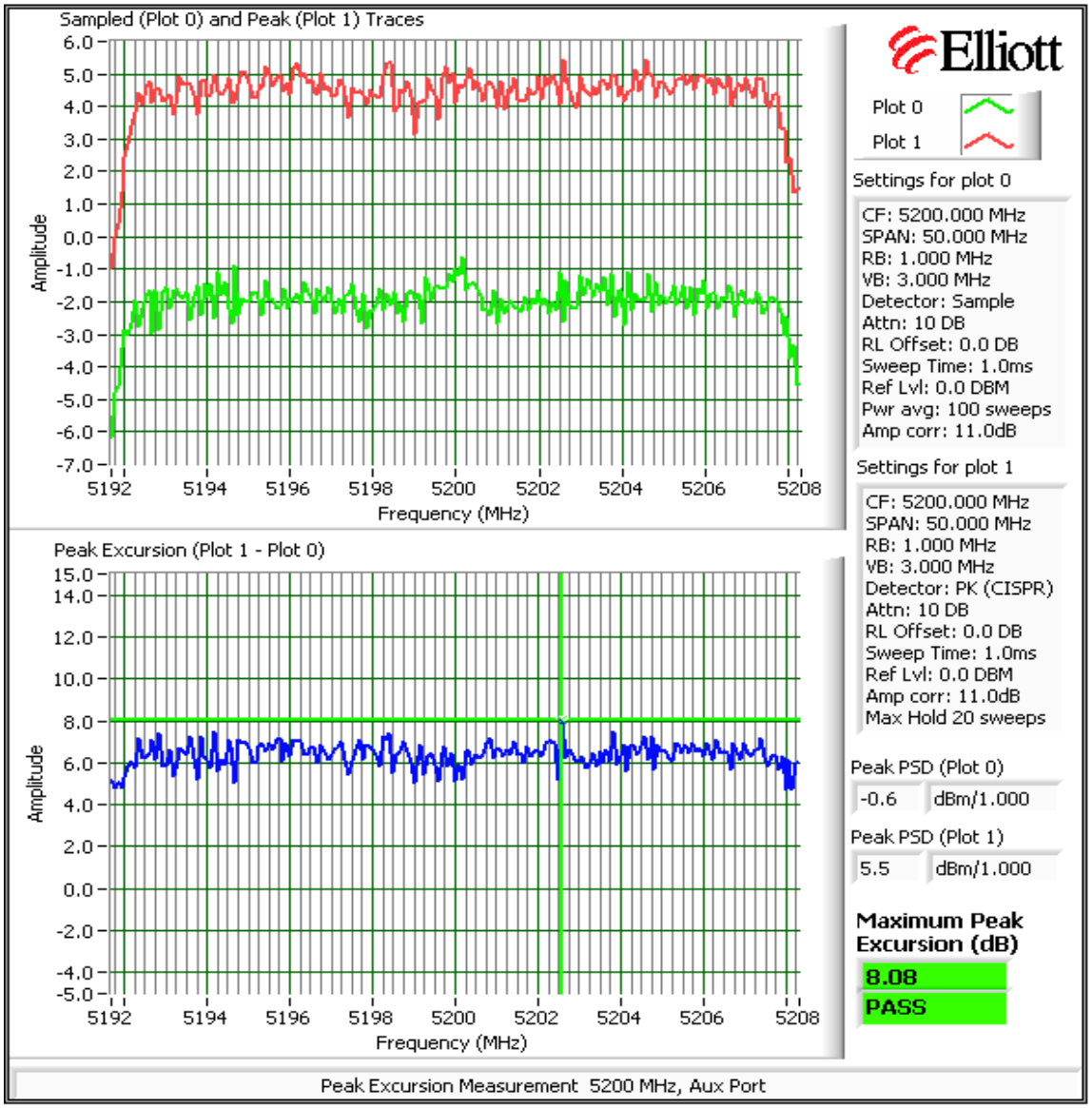


Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

Run #2: Peak Excursion Measurement

20MHz: Device meets the requirement for the peak excursion

Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)		Freq	Peak Excursion(dB)	
(MHz)	Value	Limit	(MHz)	Value	Limit	(MHz)	Value	Limit
5180	8.1	13.0	5260		13.0	5500		13.0
5200	8.1	13.0	5300		13.0	5580		13.0
5240	8.0	13.0	5320		13.0	5700		13.0



Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

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

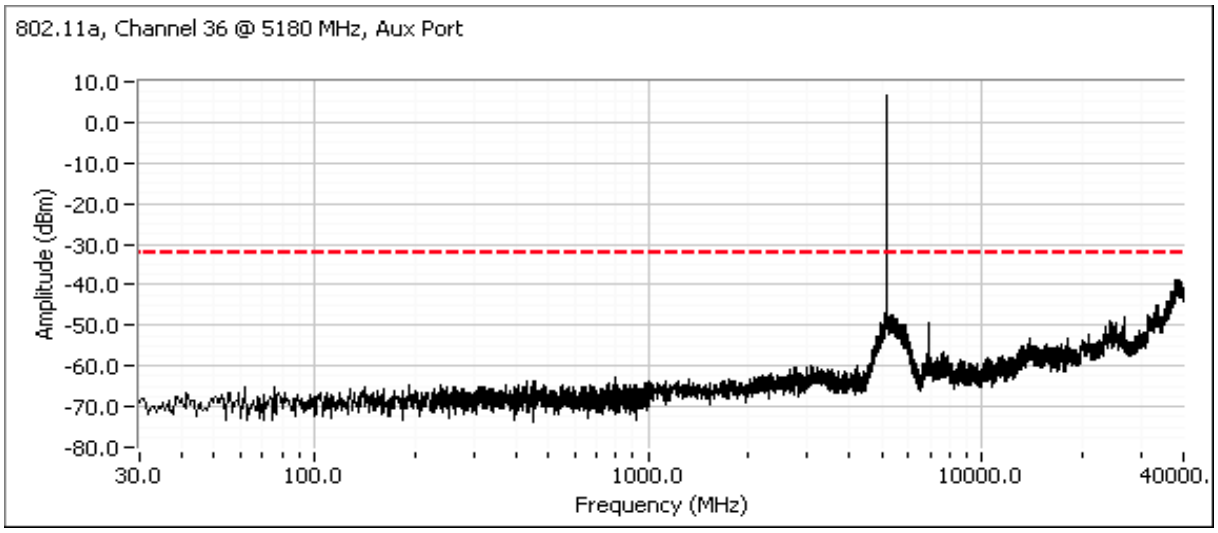
Maximum Antenna Gain:	5.0 dBi	
Spurious Limit:	-27.0 dBm/MHz eirp	
Limit Used On Plots [Note 1]:	-32.0 dBm/MHz	Average Limit (RB=1MHz, VB=10Hz)
	-12.0 dBm/MHz	Peak Limit (RB=VB=1MHz)

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 from the bands and that are close to the limit are made to determine compliance as the antenna gain is not known at these frequencies.
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.

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

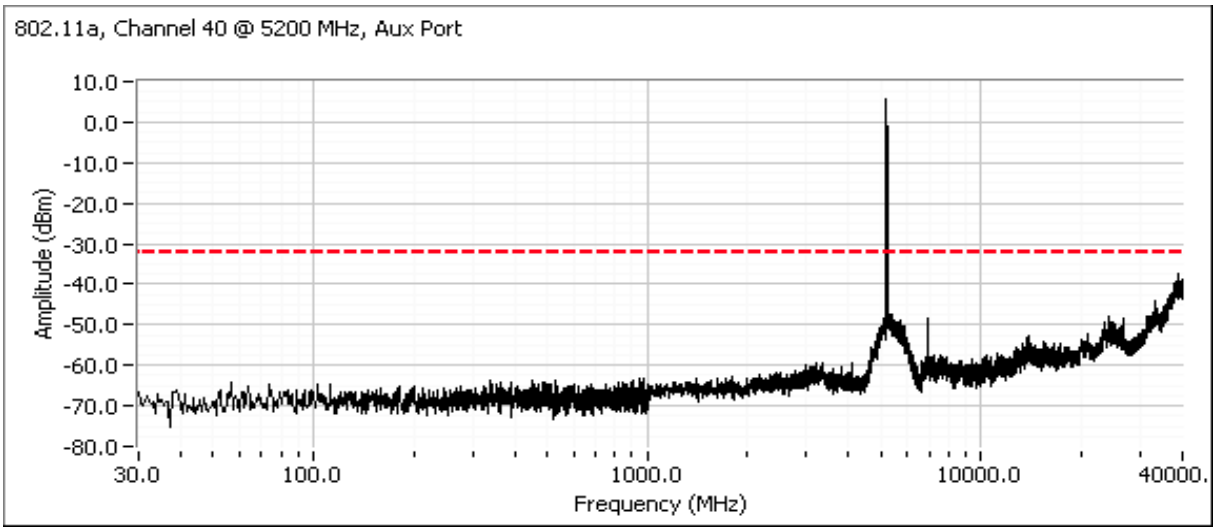
Low channel, 5150 - 5250 MHz Band

Compliance with the radiated limits for the restricted band immediately below 5150MHz is demonstrated through the radiated emissions tests.



Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

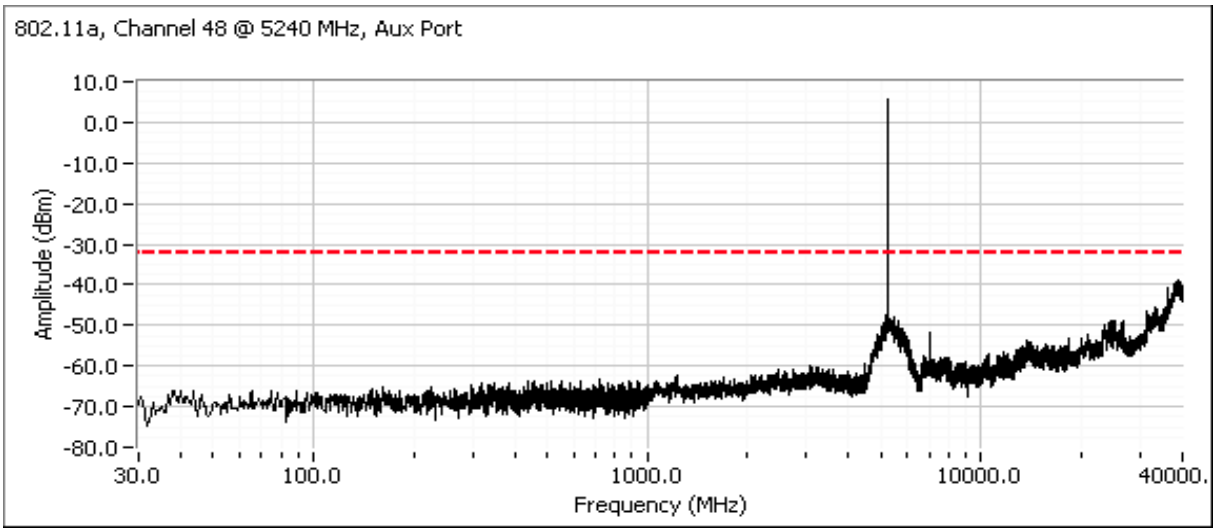
Center channel, 5150 - 5250 MHz Band

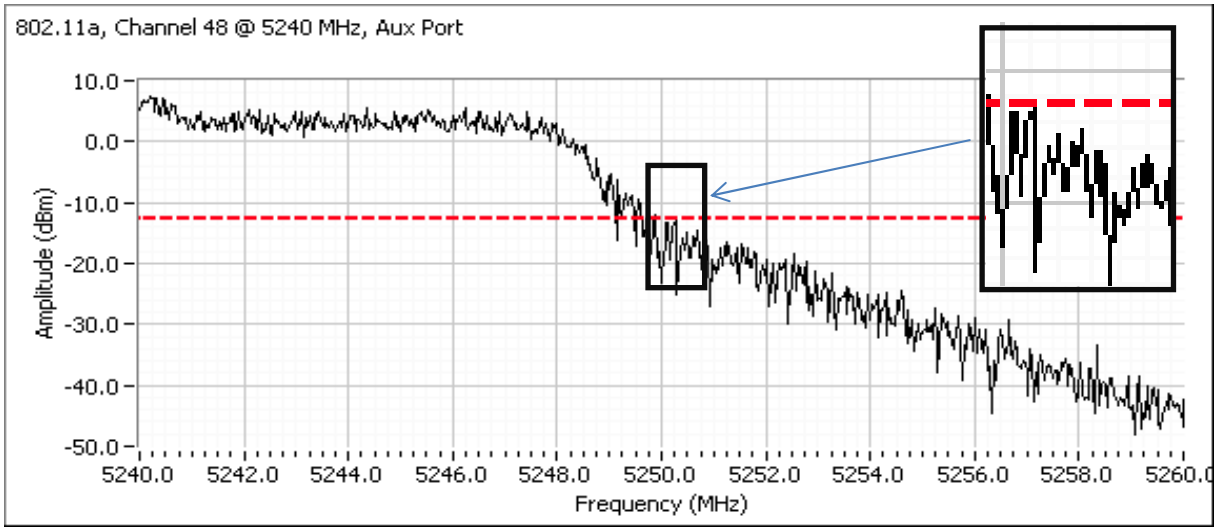


Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel with Intercom, MVP-TDS-9 Docking Station and TBD Docking Station	T-Log Number:	T80241
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC 15.247/15E, RSS210, EN 300 328 v1.7.1, EN 301 893 V1.5.1.	Class:	N/A

High channel, 5150 - 5250 MHz Band

Note; As the device does not operate in the 5250 - 5350 MHz band a plot showing -20dBc at 5250 MHz is included.





Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel	T-Log Number:	T80309
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		-
Emissions Standard(s):	FCC, VCCI, EN 55022, EN 301 489-17	Class:	B
Immunity Standard(s):	EN 301 489-17, EN 301 489-1v1.8.1, EN 55024	Environment:	-

EMC Test Data

For The

AMX

Model

MVP-9000i Modero Wireless Touch Panel

Date of Last Test: 9/16/2010

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel	T-Log Number:	T80309
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC, VCCI, EN 55022, EN 301 489-17	Class:	B

Conducted Emissions

(Elliott Laboratories Fremont Facility, Semi-Anechoic Chamber)

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: 8/21/2010
Test Engineer: Riaz Momand
Test Location: Fremont Chamber # 3

Config. Used: 1
Config Change: None
EUT Voltage: Refer to individual run

General Test Configuration

For tabletop equipment, the EUT was located on a wooden table inside the semi-anechoic chamber, 40 cm from a vertical coupling plane and 80cm from the LISN. A second LISN was used for all local support equipment .Remote support equipment was located inside the semi-anechoic chamber away from the antenna to establish wireless connection to the EUT.

Ambient Conditions:

Temperature: 22 °C
Rel. Humidity: 44 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power, 230V / 50Hz	Class B	Pass	42.5dBµV @ 3.557MHz (-3.5dB)
2	CE, AC Power,120V / 60Hz	Class B	Pass	39.8dBµV @ 3.621MHz (-6.2dB)
3	CE, AC Power,100V / 50Hz	Class B	Pass	39.2dBµV @ 4.025MHz (-6.8dB)

Modifications Made During Testing

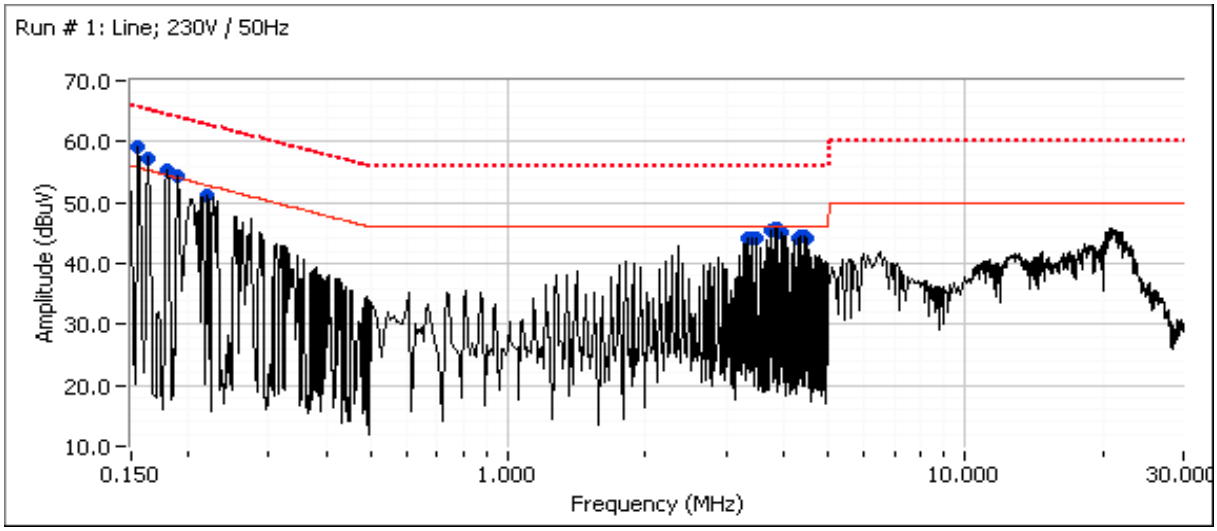
No modifications were made to the EUT during testing

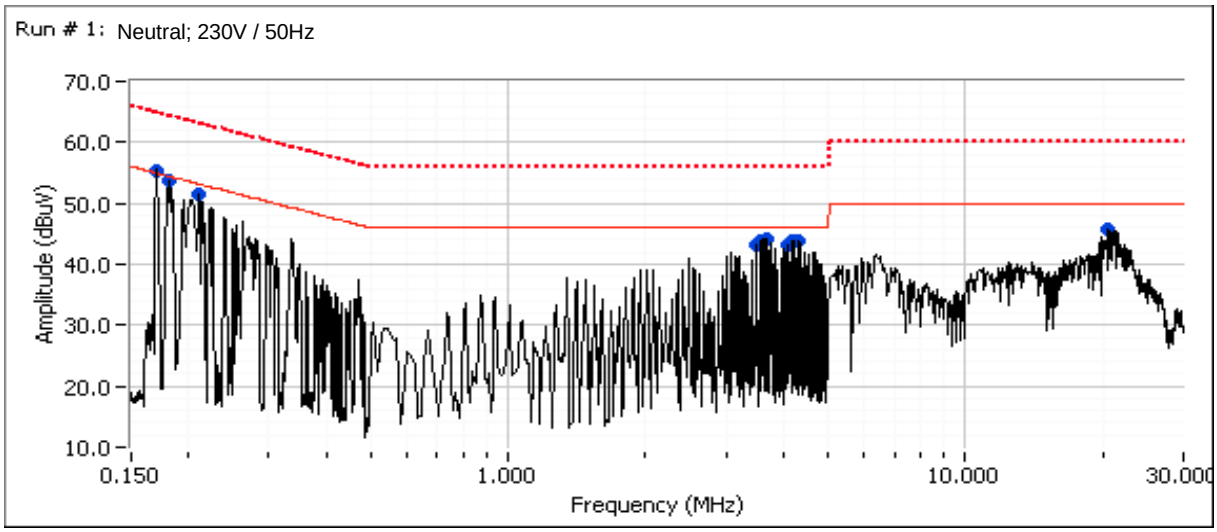
Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel	T-Log Number:	T80309
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC, VCCI, EN 55022, EN 301 489-17	Class:	B

Run # 1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 230V / 50Hz





Run # 1 Continued on Next Page .....

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel	T-Log Number:	T80309
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC, VCCI, EN 55022, EN 301 489-17	Class:	B

…… Run # 1 Continued

Preliminary peak readings captured during pre-scan (peak readings vs. average limit)

Frequency	Level	AC	Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.156	59.0	Line	55.7	3.3	Peak	
0.161	57.3	Line	55.3	2.0	Peak	
0.174	55.3	Line	54.5	0.8	Peak	
0.183	54.4	Line	54.1	0.3	Peak	
0.213	51.3	Line	52.8	-1.5	Peak	
3.423	44.1	Line	46.0	-1.9	Peak	
3.490	44.2	Line	46.0	-1.8	Peak	
3.557	44.0	Line	46.0	-2.0	Peak	
3.691	45.5	Line	46.0	-0.5	Peak	
3.893	45.6	Line	46.0	-0.4	Peak	
3.959	45.7	Line	46.0	-0.3	Peak	
4.027	45.2	Line	46.0	-0.8	Peak	
4.228	44.0	Line	46.0	-2.0	Peak	
4.361	44.4	Line	46.0	-1.6	Peak	
0.164	55.2	Neutral	55.0	0.2	Peak	
0.175	53.7	Neutral	54.4	-0.7	Peak	
0.203	51.4	Neutral	53.2	-1.8	Peak	
3.556	43.2	Neutral	46.0	-2.8	Peak	
3.623	43.9	Neutral	46.0	-2.1	Peak	
3.690	44.2	Neutral	46.0	-1.8	Peak	
4.159	43.3	Neutral	46.0	-2.7	Peak	
4.226	43.7	Neutral	46.0	-2.3	Peak	
4.293	43.9	Neutral	46.0	-2.1	Peak	
4.360	43.8	Neutral	46.0	-2.2	Peak	
20.993	45.7	Neutral	50.0	-4.3	Peak	

Final quasi-peak and average readings

Frequency	Level	AC	Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
3.557	42.5	Line	46.0	-3.5	AVG	AVG (0.10s)
3.691	42.5	Line	46.0	-3.5	AVG	AVG (0.10s)
4.360	41.7	Neutral	46.0	-4.3	AVG	AVG (0.10s)
3.690	41.6	Neutral	46.0	-4.4	AVG	AVG (0.10s)
4.293	41.6	Neutral	46.0	-4.4	AVG	AVG (0.10s)
4.027	41.5	Line	46.0	-4.5	AVG	AVG (0.10s)
3.490	41.3	Line	46.0	-4.7	AVG	AVG (0.10s)

Run # 1 Continued on Next Page ……

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel	T-Log Number:	T80309
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC, VCCI, EN 55022, EN 301 489-17	Class:	B

..... Run # 1 Continued

Final quasi-peak and average readings

Frequency	Level	AC	Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
4.228	41.1	Line	46.0	-4.9	AVG	AVG (0.10s)
4.226	40.9	Neutral	46.0	-5.1	AVG	AVG (0.10s)
4.159	40.4	Neutral	46.0	-5.6	AVG	AVG (0.10s)
3.959	40.1	Line	46.0	-5.9	AVG	AVG (0.10s)
3.623	39.4	Neutral	46.0	-6.6	AVG	AVG (0.10s)
3.893	36.8	Line	46.0	-9.2	AVG	AVG (0.10s)
3.423	36.2	Line	46.0	-9.8	AVG	AVG (0.10s)
4.361	36.2	Line	46.0	-9.8	AVG	AVG (0.10s)
3.556	35.2	Neutral	46.0	-10.8	AVG	AVG (0.10s)
3.557	44.4	Line	56.0	-11.6	QP	QP (1.00s)
20.993	37.9	Neutral	50.0	-12.1	AVG	AVG (0.10s)
3.691	43.7	Line	56.0	-12.3	QP	QP (1.00s)
3.690	43.7	Neutral	56.0	-12.3	QP	QP (1.00s)
4.360	43.6	Neutral	56.0	-12.4	QP	QP (1.00s)
3.490	43.5	Line	56.0	-12.5	QP	QP (1.00s)
4.027	43.4	Line	56.0	-12.6	QP	QP (1.00s)
4.293	43.0	Neutral	56.0	-13.0	QP	QP (1.00s)
3.959	42.8	Line	56.0	-13.2	QP	QP (1.00s)
4.228	42.6	Line	56.0	-13.4	QP	QP (1.00s)
3.623	42.6	Neutral	56.0	-13.4	QP	QP (1.00s)
4.226	42.3	Neutral	56.0	-13.7	QP	QP (1.00s)
0.156	51.2	Line	65.7	-14.5	QP	QP (1.00s)
3.423	41.5	Line	56.0	-14.5	QP	QP (1.00s)
4.159	41.3	Neutral	56.0	-14.7	QP	QP (1.00s)
0.161	50.5	Line	65.4	-14.9	QP	QP (1.00s)
20.993	44.9	Neutral	60.0	-15.1	QP	QP (1.00s)
0.203	48.2	Neutral	63.5	-15.3	QP	QP (1.00s)
3.556	40.4	Neutral	56.0	-15.6	QP	QP (1.00s)
0.174	48.9	Line	64.8	-15.9	QP	QP (1.00s)
3.893	40.1	Line	56.0	-15.9	QP	QP (1.00s)
4.361	40.0	Line	56.0	-16.0	QP	QP (1.00s)
0.164	48.9	Neutral	65.3	-16.4	QP	QP (1.00s)
0.183	47.7	Line	64.3	-16.6	QP	QP (1.00s)
0.175	47.5	Neutral	64.7	-17.2	QP	QP (1.00s)
0.213	44.5	Line	63.1	-18.6	QP	QP (1.00s)
0.203	33.1	Neutral	53.5	-20.4	AVG	AVG (0.10s)

Run # 1 Continued on Next Page .....

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel	T-Log Number:	T80309
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC, VCCI, EN 55022, EN 301 489-17	Class:	B

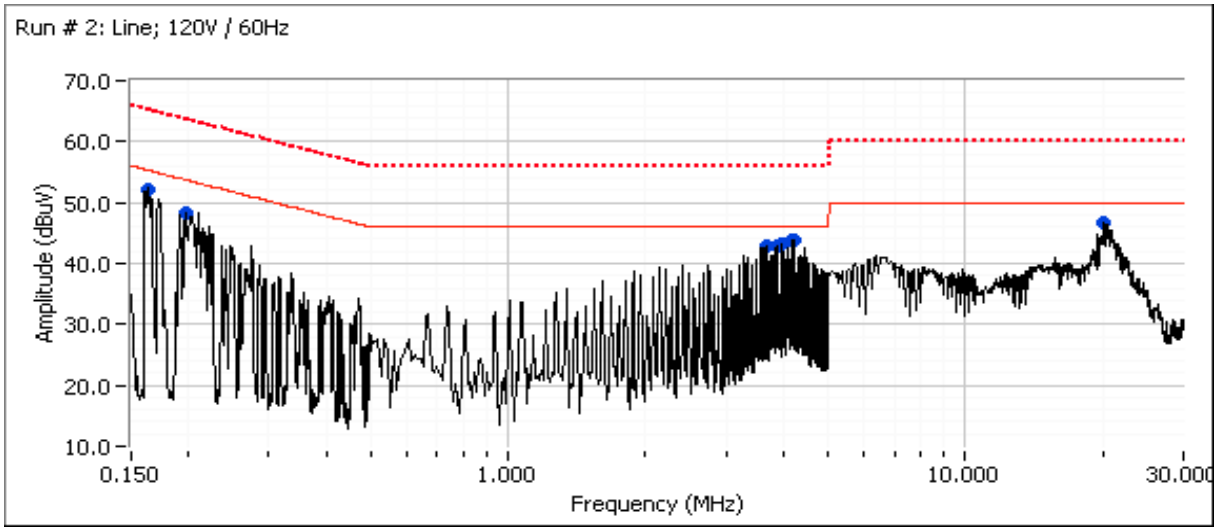
..... Run # 1 Continued

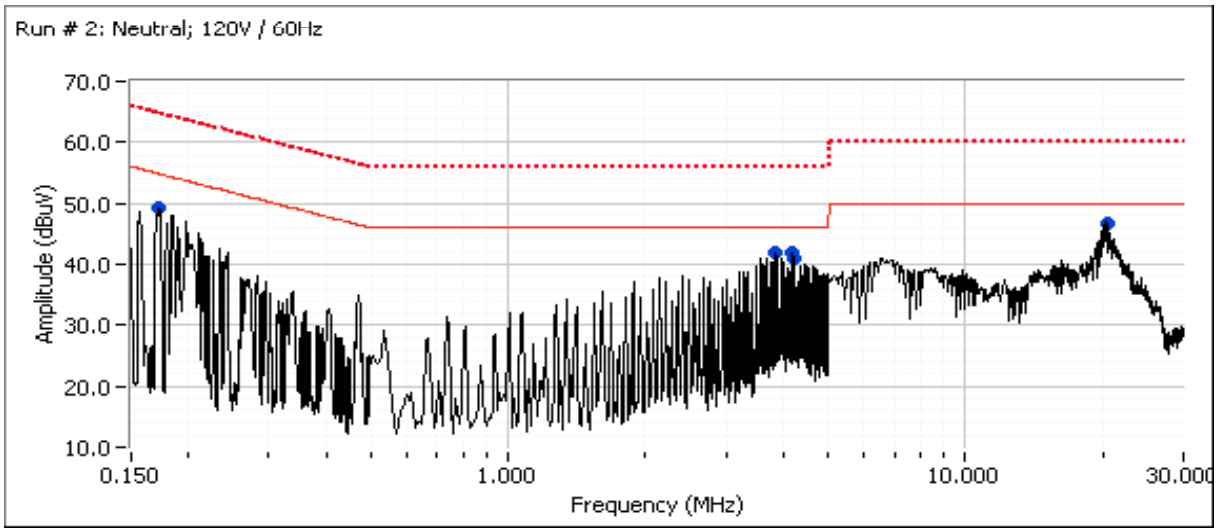
Final quasi-peak and average readings

Frequency	Level	AC	Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.156	21.4	Line	55.7	-34.3	AVG	AVG (0.10s)
0.161	20.4	Line	55.4	-35.0	AVG	AVG (0.10s)
0.183	19.1	Line	54.3	-35.2	AVG	AVG (0.10s)
0.174	19.3	Line	54.8	-35.5	AVG	AVG (0.10s)
0.213	17.6	Line	53.1	-35.5	AVG	AVG (0.10s)
0.175	18.8	Neutral	54.7	-35.9	AVG	AVG (0.10s)
0.164	19.2	Neutral	55.3	-36.1	AVG	AVG (0.10s)

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel	T-Log Number:	T80309
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC, VCCI, EN 55022, EN 301 489-17	Class:	B

Run # 2: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V / 60Hz





Run # 2 Continued on Next Page .....

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel	T-Log Number:	T80309
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC, VCCI, EN 55022, EN 301 489-17	Class:	B

…… Run # 2 Continued

Preliminary peak readings captured during pre-scan (peak readings vs. average limit)

Frequency	Level	AC	Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.160	52.1	Line	55.3	-3.2	Peak	
0.201	48.4	Line	53.7	-5.3	Peak	
3.621	43.0	Line	46.0	-3.0	Peak	
3.891	43.0	Line	46.0	-3.0	Peak	
3.958	43.2	Line	46.0	-2.8	Peak	
4.226	43.9	Line	46.0	-2.1	Peak	
4.226	43.8	Line	46.0	-2.2	Peak	
20.456	46.7	Line	50.0	-3.3	Peak	
0.166	49.3	Neutral	54.8	-5.5	Peak	
3.823	42.0	Neutral	46.0	-4.0	Peak	
4.159	42.0	Neutral	46.0	-4.0	Peak	
4.159	41.1	Neutral	46.0	-4.9	Peak	
20.258	46.8	Neutral	50.0	-3.2	Peak	

Final quasi-peak and average readings

Frequency	Level	AC	Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
3.621	39.8	Line	46.0	-6.2	AVG	AVG (0.10s)
3.891	39.8	Line	46.0	-6.2	AVG	AVG (0.10s)
4.226	39.6	Line	46.0	-6.4	AVG	AVG (0.10s)
4.226	39.6	Line	46.0	-6.4	AVG	AVG (0.10s)
3.958	38.9	Line	46.0	-7.1	AVG	AVG (0.10s)
4.159	38.5	Neutral	46.0	-7.5	AVG	AVG (0.10s)
4.159	38.4	Neutral	46.0	-7.6	AVG	AVG (0.10s)
3.823	37.4	Neutral	46.0	-8.6	AVG	AVG (0.10s)
3.958	42.7	Line	56.0	-13.3	QP	QP (1.00s)
4.226	42.4	Line	56.0	-13.6	QP	QP (1.00s)
4.226	42.4	Line	56.0	-13.6	QP	QP (1.00s)
3.891	42.0	Line	56.0	-14.0	QP	QP (1.00s)
3.621	41.9	Line	56.0	-14.1	QP	QP (1.00s)
20.456	35.3	Line	50.0	-14.7	AVG	AVG (0.10s)
3.823	41.2	Neutral	56.0	-14.8	QP	QP (1.00s)
4.159	41.2	Neutral	56.0	-14.8	QP	QP (1.00s)
4.159	41.2	Neutral	56.0	-14.8	QP	QP (1.00s)

Run # 2 Continued on Next Page ……

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel	T-Log Number:	T80309
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC, VCCI, EN 55022, EN 301 489-17	Class:	B

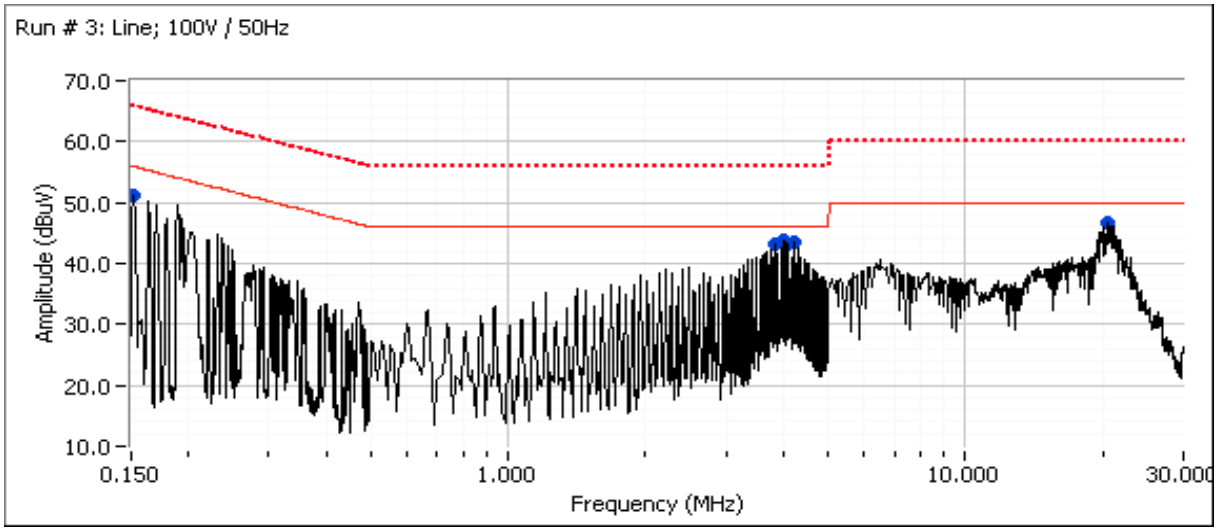
..... Run # 2 Continued

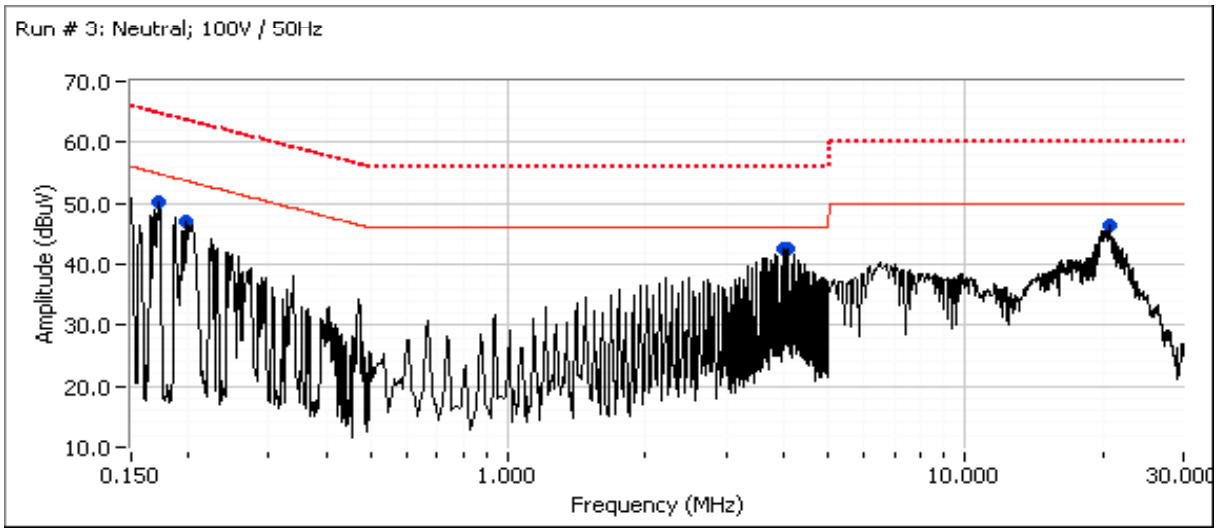
Final quasi-peak and average readings

Frequency	Level	AC	Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
20.258	33.7	Neutral	50.0	-16.3	AVG	AVG (0.10s)
0.201	47.0	Line	63.6	-16.6	QP	QP (1.00s)
20.456	43.3	Line	60.0	-16.7	QP	QP (1.00s)
20.258	41.9	Neutral	60.0	-18.1	QP	QP (1.00s)
0.160	45.4	Line	65.5	-20.1	QP	QP (1.00s)
0.201	32.5	Line	53.6	-21.1	AVG	AVG (0.10s)
0.166	43.2	Neutral	65.2	-22.0	QP	QP (1.00s)
0.160	17.9	Line	55.5	-37.6	AVG	AVG (0.10s)
0.166	16.5	Neutral	55.2	-38.7	AVG	AVG (0.10s)

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel	T-Log Number:	T80309
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC, VCCI, EN 55022, EN 301 489-17	Class:	B

Run # 3: AC Power Port Conducted Emissions, 0.15 - 30MHz, 100V / 50Hz





Run # 2 Continued on Next Page .....

Client:	AMX	Job Number:	J80082
Model:	MVP-9000i Modero Wireless Touch Panel	T-Log Number:	T80309
		Account Manager:	Christine Krebill
Contact:	Heath Sharp		
Standard:	FCC, VCCI, EN 55022, EN 301 489-17	Class:	B

…… Run # 2 Continued

Preliminary peak readings captured during pre-scan (peak readings vs. average limit)

Frequency	Level	AC	Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
0.151	51.1	Line	55.9	-4.8	Peak	
3.824	43.2	Line	46.0	-2.8	Peak	
4.025	43.8	Line	46.0	-2.2	Peak	
4.026	43.3	Line	46.0	-2.7	Peak	
4.226	43.5	Line	46.0	-2.5	Peak	
20.526	46.8	Line	50.0	-3.2	Peak	
0.166	50.2	Neutral	54.9	-4.7	Peak	
0.202	47.0	Neutral	53.7	-6.7	Peak	
4.025	42.5	Neutral	46.0	-3.5	Peak	
4.093	42.4	Neutral	46.0	-3.6	Peak	
20.462	46.3	Neutral	50.0	-3.7	Peak	

Final quasi-peak and average readings

Frequency	Level	AC	Class B		Detector	Comments
MHz	dBµV	Line	Limit	Margin	QP/Ave	
4.025	39.2	Line	46.0	-6.8	AVG	AVG (0.10s)
3.824	39.0	Line	46.0	-7.0	AVG	AVG (0.10s)
4.226	38.7	Line	46.0	-7.3	AVG	AVG (0.10s)
4.026	38.6	Line	46.0	-7.4	AVG	AVG (0.10s)
4.025	37.2	Neutral	46.0	-8.8	AVG	AVG (0.10s)
4.093	37.0	Neutral	46.0	-9.0	AVG	AVG (0.10s)
4.025	43.1	Line	56.0	-12.9	QP	QP (1.00s)
4.026	42.7	Line	56.0	-13.3	QP	QP (1.00s)
20.526	36.3	Line	50.0	-13.7	AVG	AVG (0.10s)
3.824	42.2	Line	56.0	-13.8	QP	QP (1.00s)
4.226	42.2	Line	56.0	-13.8	QP	QP (1.00s)
4.025	41.5	Neutral	56.0	-14.5	QP	QP (1.00s)
20.462	35.5	Neutral	50.0	-14.5	AVG	AVG (0.10s)
4.093	41.0	Neutral	56.0	-15.0	QP	QP (1.00s)
20.526	44.3	Line	60.0	-15.7	QP	QP (1.00s)
20.462	42.9	Neutral	60.0	-17.1	QP	QP (1.00s)
0.202	45.8	Neutral	63.5	-17.7	QP	QP (1.00s)
0.151	46.3	Line	65.9	-19.6	QP	QP (1.00s)
0.202	33.4	Neutral	53.5	-20.1	AVG	AVG (0.10s)
0.166	43.0	Neutral	65.2	-22.2	QP	QP (1.00s)
0.151	19.0	Line	55.9	-36.9	AVG	AVG (0.10s)
0.166	16.1	Neutral	55.2	-39.1	AVG	AVG (0.10s)