



MOTOROLA

MOBILE DEVICES BUSINESS

**PRODUCT SAFETY AND COMPLIANCE
EMC LABORATORY**

EMC TEST REPORT - Addendum

Test Report Number -21897-2WLAN

Report Date – 2008-07-30

The test results contained herein relate only to the model(s) identified. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics.

Technician:

A handwritten signature in black ink, appearing to read 'Uffe L. Svejgaard'.

Name: Uffe Lund Svejgaard
Test: 2008-07-24 to 2008-07-30

As the responsible EMC Engineer, I hereby declare that the equipment tested as specified in this report conforms to the requirements indicated.

Signature:

A handwritten signature in black ink, appearing to read 'Per K. Nielsen'.

Name: Per K. Nielsen

Title: Sr. Staff Engineer

Date: 2008-07-30

This report must not be reproduced, except in full, without written approval from this laboratory.

FCC Registration Number: 863448
IC Registration Number: 109AP-1

ADR Testing Service location ADR AL
ISO/IEC-17025:2005 accredited by UKAS



2404

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Test Report Details

Tests Performed By: Motorola A/S
Product Safety and Compliance Group
Lindholm Brygge 35
9400 Nr.Sundby Fax (45) 7219-5002
Phone: (45) 7219-5000
Motorola PCS FRN: 0016105769
FCC Registration Number: 863448
Industry Canada Number: 109AP-1

Tests Requested By: Motorola Inc.
Mobile Devices business
600 North US Hwy 45
Libertyville, IL 60048

Product Type: Cell phone with WLAN (WiFi)

Form factor: Bar

Signaling Capability: Quadra band 850/900/1800/1900 GSM with
GPRS class 10 and EDGE class 10, Bluetooth
class 1, WiFi band b/g, aGPS.

Serial Numbers: IMEI 353977020000578

FCC ID: IHDT56JV1

Project number: 21897-2

Testing Complete Date: 30-07-2008

Applicable Standards

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

- Part 15 Subpart C – Intentional Radiators
- Part 22 Subpart H - Public Mobile Services
- Part 24 - Personal Communications Services
- Part 27 - Wireless Communications Service
- Part 90 - Private Land Mobile Radio Service

Applicable Standards: ANSI 63.4-2003, RSS-GEN, RSS-210 (WLAN).

DA 00-705, "Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems" published by the Federal Communications Commission was also used in the testing of this product.

The following tests were performed according to the regulations:

- The **spurious radiated emission** requirements of **§ 15.247 and § 15.249 of CFR47 Part 15 2006**, specifically" radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).
- Under this project only 30 to 1000MHz, 1 to 25GHz radiated and radiated band-edge measurements were performed.
- For frequencies ≤ 1 GHz a 100 KHz RBW (6 dB) is used and >1 GHz a 1 MHz RBW (6 dB) is used.

Summary of Testing

Test	Test Name	Pass/Fail
1	Field Strength of Spurious Emissions	Fail (*1)
2	Band-edge Compliance of RF Radiated Emissions	Pass (*2)

Test	Test Name	Results
1	Field Strength of Spurious Emissions	See plots
2	Band-edge Compliance of RF Radiated Emissions	See plots

(*1) The rules found in CFR47, FCC part 15.247(d) handled in appendix-2 were applied for the 4.th harmonic.

(*2) The rules found in CFR47, FCC part 15.247(d) handled in appendix-1 were applied.

The margin with respect to the limit is the minimum margin for all modes and bands. () indicates the margin at which the product exceeds the limit.

General and Special Conditions

The 21897-2 sample was tested using a fully charged battery when applicable. Where a battery could not be used due to the need for a controlled variation of input voltage, an external power supply was utilized.

Special test S/W was used for these tests. In all band (b) tests, the WLAN was transmitting at 11Mbps (DSSS) ~ 15 dBm and in all band (g) tests, the WLAN was transmitting at 36 Mbps (OFDM) ~ 15 dBm.

802.11g Data Rates	
54/48 Mbps	13.0 dBm
36/24 Mbps	15.0 dBm
18/12 Mbps	15.0 dBm
9/6 Mbps	15.0 dBm

802.11b Data Rates	
11 Mbps	15.0 dBm

All testing was done in an indoor controlled environment with an average temperature of 22.8° C +- 1° C and relative humidity of 51.3% +-5% over the dates used for testing.

Equipment and Cable Configurations

The EUT was tested in a stand-alone configuration that is representative of typical use.

Measuring Equipment and Calibration Information

Equipment related to the semi-anechoic chamber testing:

Equipment	Model/type	Serial number	Operational range	Date of calibration
EMI analyzers	ESIB 26	100179	20 Hz – 26.5 GHz	26.05.2008
	ESU 40	100040	20 Hz – 40 GHz	07.02.2008
Pre Amplifiers	EA PA 02 JCA12 300 JCA218 4003 JCA48 300 JCA1826 431 JCA1218 500)	800002	(1 – 26 GHz) 1 GHz – 2 GHz 2 GHz – 18 GHz 4 GHz – 8 GHz 18 GHz – 26 GHz 12 GHz – 18 GHz	26.06.2007
	Sonoma 310N	185680	9 kHz – 1 GHz	19.06.2007
	AFS4-02001800-35-ULN (Mounted on EMCO 3115)	805815	2 GHz – 18 GHz	13.03.2008
	JSA-18004000-30-5A (Mounted on EMCO 3116)	965195	18 GHz – 40 GHz	06.03.2008
	JCA 1840-4000 (Mounted on EMCO 3116)	101	18 – 40 GHz	06.03.2008
	JCA218-4003	104	1 GHz – 18 GHz	19.05.2008
Radio com. Tester	MT8860B	6K00006368	WiFi band b/g	01.05.2007
High pass filter	K&L 3DH1-3000/T13000-0/0 (Mounted on EMCO 3115)	8	(2700 - 20000 MHz)	13.03.2008
Attenuator	Weinschel 54A-6 (3dB) (Mounted on EMCO 3116)	T8929	DC – 40 GHz	06.03.2008
	H&S 6603.19AA (3dB) (Mounted on EMCO 3115)	na	DC-18 GHz	13.03.2008
Band reject filters	K&L 4N45-2412/T22-0/0	1	WiFi channel 1 reject (30 MHz – 3 GHz)	15.09.2007
	K&L 4N45-2442/T22-0/0	1	WiFi channel 6 reject (30 MHz – 3 GHz)	14.09.2007
	K&L 4N45-2472/T22-0/0	1	WiFi channel 11 reject (30 MHz – 3 GHz)	17.09.2007
Cable	C-ANT-FP1-4S (SMA)	na	30 MHz – 6 GHz 2.8 GHz – 18 GHz 18 GHz – 28 GHz	19.03.2008, 13.03.2008 19.03.2008
	C-ANT-FP1-10S (SK)	na	18 GHz – 40 GHz	06.03.2008
Filter	F-3S-2S (SK-Bypass)	na	30 MHz – 40 GHz	06.03.2008

Equipment related to carrier spectrum testing:

Equipment	Model/type	Serial number	Operational range	Date of calibration
Spectrum analysers	FSEA	845097/004	20 Hz – 3.5 GHz	23.04.07 (na)
Radio com. Tester	CMU 200	834639/003	GSM 850/900/1800/1900 IS95, UMTS, Bluetooth	14.11.07

The antennas used in the various tests are listed in the below table. All the log-periodic antennas are used as communication and link establishment antennas for (GSM, UMTS, CDMA, FM and/or Bluetooth).

Antenna	Type	Serial number	Operational range	Date of calibration
Hybrid-log periodic	HLP 3003C	060300	30 MHz – 3 GHz	07.12.2007
Log-periodic (link)	LPDA 8030	090200	800 MHz – 3 GHz	(na)
Log-periodic (link)	LPDA 8030	090100	800 MHz – 3 GHz	(na)
Log-periodic (link)	PLP 3003	021701	300 MHz – 3 GHz	(na)
Horn (link)	AT4002A	28548	800 MHz – 5 GHz	(na)
Horn (link)	AT4002A	28547	800 MHz – 5 GHz	(na)
Double ridged horn (w. 3 GHz HP-filter + 1x 2-18 GHz pre-amp+1x 3dB attenuator.)	EMCO 3115	71502	1 GHz – 18 GHz	21.05.2008
Double rigid horn (w. 2x 18-40 GHz pre-amp+3dB attenuator.)	EMCO 3116	2637	18 GHz – 40 GHz	20.12.2007

All equipment is on a one-year calibration cycle except for link antennas.

Description of WLAN (WiFi) Transmitter

The 21897-2 cell phone offers WLAN as a feature. The WLAN direct sequence spread-spectrum transceiver is designed to operate between 2400 and 2483 MHz. The WLAN antenna is mounted on the PCB inside of the EUT. The antenna installation is permanent. For a more thorough description of the functionality please refer to Exhibit 12 of this package.

As a WLAN transmitter, it is designed operate with other WLAN devices as defined by industrial standard. In this application, the device is battery-operated.

There is a switch in the Bluetooth/WLAN (BT/WiFi) module that switches between BT and WiFi. They share the same antenna, and you are able to use a BT headset while in a WiFi VoIP call, however, they do not transmit and receive at the same time. There is a 20 ms delay (for switching between the two systems in time domain) using an intelligent multiplexing scheme. Even though they share the same antenna they are **NOT ON** at the same time. The WiFi is therefore tested as a standalone transmitter.

Measurement Procedures and Data

FIELD STRENGTH OF SPURIOUS EMISSIONS

CFR Part 2.1053, 15.249

Measurement Procedure

The Equipment-Under-Test is placed inside the semi-anechoic chamber on a wooden table at the turntable center. For each spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters and the turntable is rotated 360 degrees to obtain a maximum reading on the spectrum analyzer. This is repeated for both horizontal and vertical polarizations of the receive antenna.

The field strength of each radiated emission is calculated by correcting the EMI receiver level for cable loss, amplifier gain, and antenna correction factors.

Field Strength (dB μ V/m) = EMI Receiver Level (dB μ V) + Cable Loss (dB) + Filter Loss (dB) - Amplifier Gain (dB) + Antenna Correction Factor (3/m)

A fully charged battery was used for the supply voltage.

The used battery type was BT60 with model number SNN5819A

The test sample was operated during the measurements under the following conditions:

- Tests were performed at low, mid and high channels.
- Tests were performed in both horizontal and vertical polarity.
- Tests were performed in both operational WiFi bands (b) and (g)
- Investigation of maximum radiation orientation and position of the product sample to determine test orientations angles.
 - Tests were performed with the sample orientated along X, Y and Z orthogonal axis based on findings.
 - Tests were performed with the test sample placed in worst case position either open or closed based on form factor. Verification tests were performed for the other position.

Measurement Results

Comments:

The band edge measurements crossing the corner for the low channel with respect to the average limit line is acceptable when applying the FCC rule specified in CFR 15.35(b) for the use of peak detector above 1 GHz. The peak detector limit line has been added to the graphical plots.

For peak emissions detected above 1 GHz, only those emissions that are higher than the AVG limit line plus 8 dB are selected for final emission analysis.

This data was taken at ADR Aalborg, see attached below.

Maximum radiating position and orientation

The test sample was placed on top of a none conductive pedestal and a WLAN link towards the communication test set was established. The test sample was scanned with a log periodic antenna connected to a spectrum analyzer over the whole sphere and the maximum radiation orientation was determined to be the Y orientation in horizontal polarity of the test antenna, see picture section.

A check of carrier on the WLAN channel 1, 6 and 11 was performed to determine the expected maximum radiation of any WLAN harmonics for the test sample placed in orientation Y at vertical and horizontal polarity.

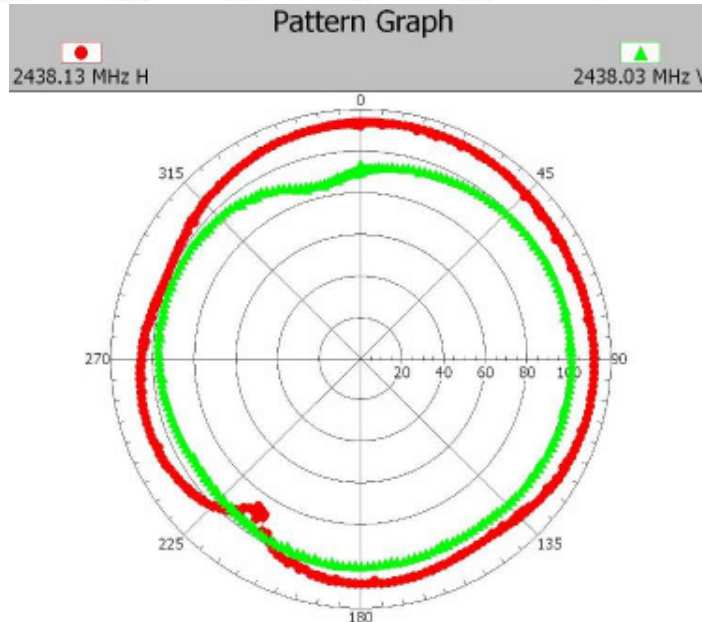
Channel 6 WLAN band (b):

Title: FCC 15.249
 File: Ashoka 21897-2 (5.31) (ESIB) FCC15.249 WLAN 2400(b) Tch-mid_X 2008-07-24 -PK Carrier RBW=10MHz.set
 Operator: ADR_AAL EMC_TL1, usv001
 EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 353977020000578
 EUT Condition: Board Rev: P2.0
 Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode
 WLAN ch-6 (2437 MHz) TX mode @ 11Mbps/15dBm. Or.-X
 EMC0 3115 antenna (30Hz - 18GHz). Peak detector used, RBW=10MHz

30-07-2008 12:17:46
 Sequence: Final Measurements

Table

Freq (MHz)	Freq (Max) (MHz)	(PEAK) EMI (dBµV/m)	(2) Limit (dBµV/m)	(PEAK) Margin Lim2 (dB)	Ttbl Agl (deg)	Pol
2437.00	2438.13	114.20	134.00	-19.80	12.30	H
2437.00	2438.03	101.21	134.00	-32.79	76.70	V



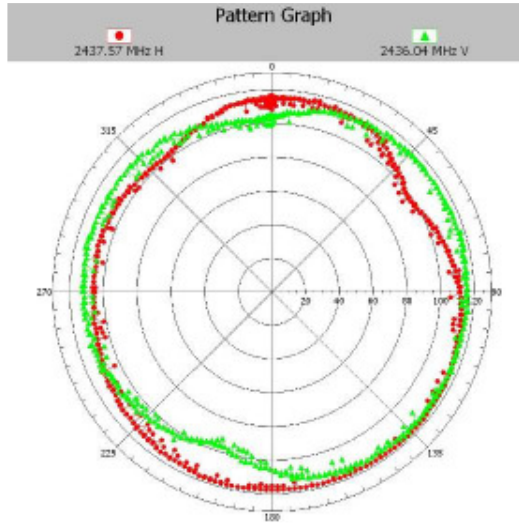
The WLAN band (b) radiated TX power is measured to 6.8 dBm on channel 6 for RBW = 1 MHz.

Channel 6 WLAN band (g):

Title: FCC 15.249
 File: Ashoka 21897-2 (5.31)(ESIB) FCC15.249 WLAN 2400(g) Tch-mid_V 2008-07-24 -PK Carrier RBW=10MHz :Sequence: Final Measurements
 Operator: ADR_AAI_EMC_TLI_uav001
 EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 353977020000578
 EUT Condition: Board Rev: P2
 Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode
 WLAN ch-6 (2437 MHz) TX mode @ 36Mbps/15dBm, Cr.=Y
 EMC0 3115 antenna (3GHz - 18GHz), Peak detector used, RBW=10MHz

Table

Freq (MHz)	Freq (Mhz) (MHz)	(PEAK) EMI (dBm)	(2) Limit (dBm)	(PEAK) Margin (dB)	Tilt Ang (deg)	Pol
2437.00	2437.57	116.51	134.00	-17.49	130.10	H
2437.00	2436.04	114.84	134.00	-19.16	72.40	V



The WLAN band (g) radiated TX power is measured to 9.11 dBm on channel 6 with RBW = 1 MHz.

WLAN Band (b):

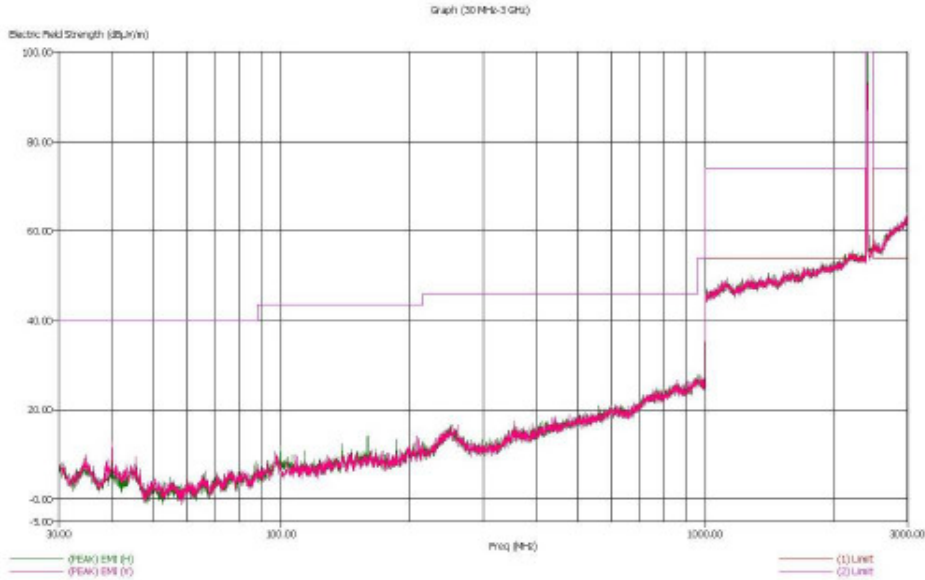
All data measured for WLAN band (b).

There were no discernible emissions above the noise floor for 30-3000MHz for Low, Mid and High Channels and all polarizations in WLAN band (b)

Only one worst case plot for each test frequency are shown in the below plots in the range from 30 MHz – 3000 MHz.

Title: FCC 15.249
File: Ashoka 21897-2 (5.31)(EIR) FCC15.249 WLAN 2400(b) Tch-low_X 2008-07-24 -3.set
Operator: AIR_AAL_EHC_TL1.usv001
EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 35397702000578
EUT Condition: Board Rev: P2
Comments: FCC 15.249(e) IEEE 802.11(b) WLAN emission in TCH mode
WLAN ch-1 (2412 MHz) TX mode @ 11Mbps/15dBm, Dr.=0
H.F. 30dBc outside (10MHz - 3 dBz). Peak detector used.
Receiver attenuation int. -20dB from 10Hz to 30Hz.

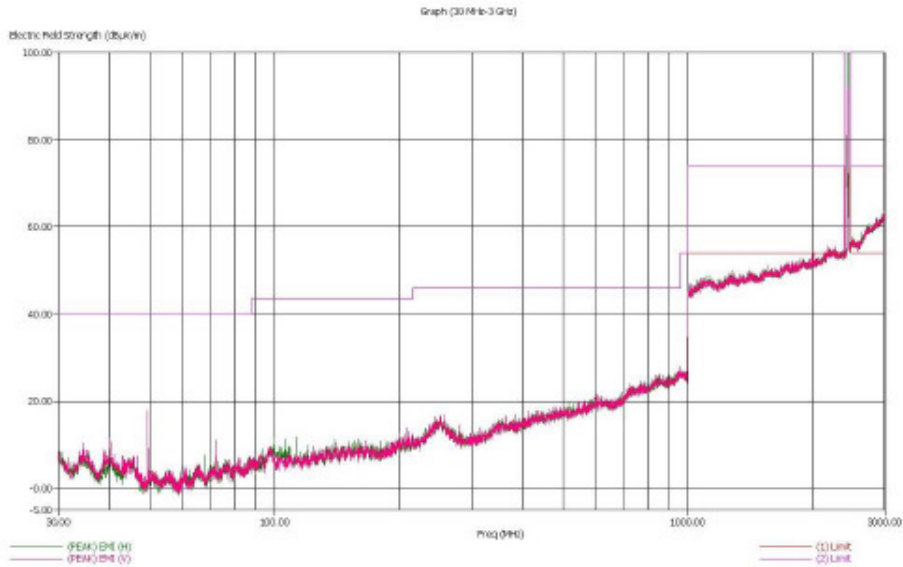
28-07-2008 12:05:23
Sequence: Preliminary Scan



30 - 3000MHz Low Channel Dual Polarization X

Title: FCC 15.249
File: Ashoka 21897-2 (5.31)(EIR) FCC15.249 WLAN 2400(b) Tch-mid_X 2008-07-24 -3.set
Operator: AIR_AAL_EHC_TL1.usv001
EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 35397702000578
EUT Condition: Board Rev: P2
Comments: FCC 15.249(e) IEEE 802.11(b) WLAN emission in TCH mode
WLAN ch-6 (2437 MHz) TX mode @ 11Mbps/15dBm, Dr.=0
H.F. 30dBc outside (10MHz - 3 dBz). Peak detector used.
Receiver attenuation int. -20dB from 10Hz to 30Hz.

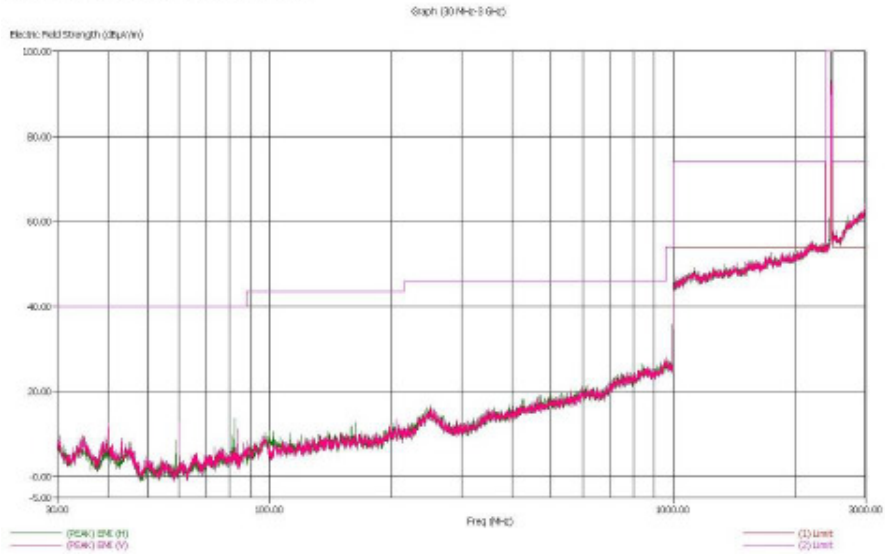
28-07-2008 13:14:18
Sequence: Preliminary Scan



30 - 3000MHz Middle Channel Dual Polarization X

Title: FCC 15.249
File: Anshok 21197-2 (3.31)ESEP1 FCC15.249 WLAN 2400(b) Ick-bqk_X 2018-07-24 -3.net
Operator: AOP_AML_SMC_TLI_sav001
EUT Type: Anshok, FCC ID: IHDT56JV1, IMEI: 352977020001578
EUT Condition: Board Rev: F2
Comments: FCC 15.249/ 15.249 902.15(b) WLAN emission in TDM mode
WLAN ch-11 (2402 MHz) TX mode @ 18Mbps/15dBm, Or.-X
HLP 1000C antenna (20dB - 2 GHz), Peak detector used.
Receiver attenuation 1st. -20dB from 10Hz to 30Hz.

28-07-2018 14:01:37
Sequence: Preliminary Data

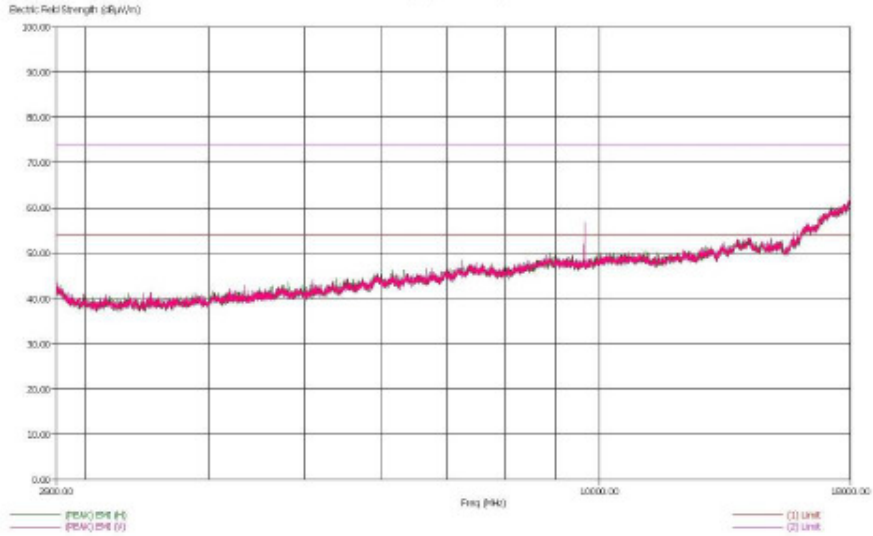


30 - 3000MHz High Channel Dual Polarization X

Title: FCC 15.249
File: Ashoka 21897-2 (5.31)(ESD) FCC15.249 WLAN 2400(b) Test-Low_X 2018-07-24 -3-18.snr
Operator: ADI_JAL_ENC_TLL_sav001
EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 353977023000378
EUT Condition: Board Rev: P2
Comments: FCC 15.249, IEEE 802.11(b) WLAN emission in TCH mode
WLAN ch-1 (2412 MHz) TX mode @ 110Mbps/154Bps, 0r-N
EMC0 3115 antenna (30Hz - 18GHz), Peak detector used.

25-07-2008 14:18:58
Sequence: Preliminary Scan

Graph (2.89e-38 GHz)

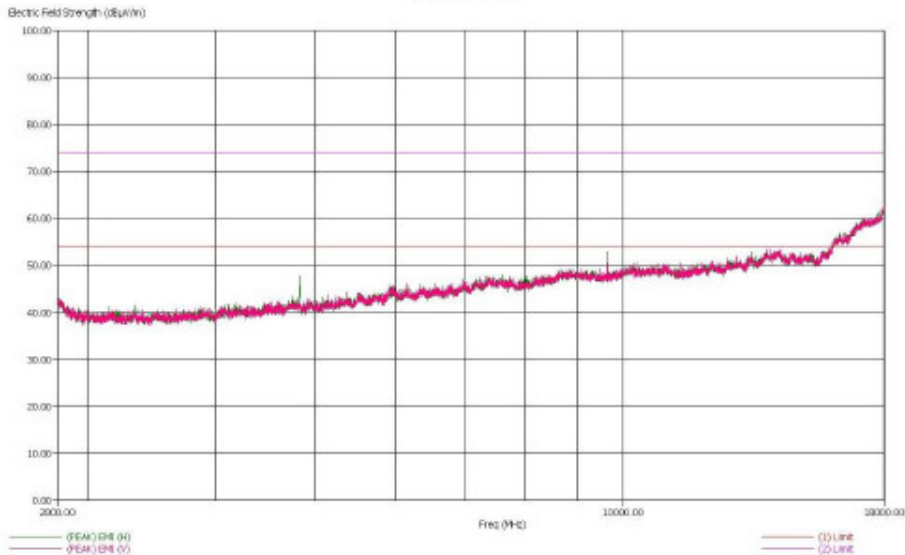


3-18GHz Low Channel X-Orientation

Title: FCC 15.249
File: Ashoka 21897-2 (5.31)(ESD) FCC15.249 WLAN 2400(b) Test-Low_Y 2018-07-24 -3-18.snr
Operator: ADI_JAL_ENC_TLL_sav001
EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 353977023000378
EUT Condition: Board Rev: P2
Comments: FCC 15.249, IEEE 802.11(b) WLAN emission in TCH mode
WLAN ch-1 (2412 MHz) TX mode @ 110Mbps/154Bps, 0r-N
EMC0 3115 antenna (30Hz - 18GHz), Peak detector used.

25-07-2008 14:30:04
Sequence: Preliminary Scan

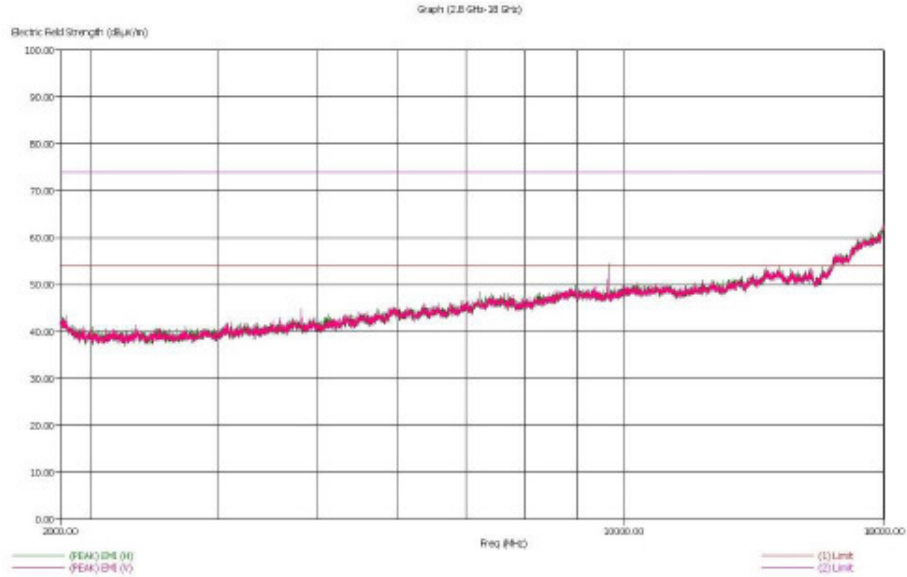
Graph (2.89e-18 GHz)



3-18GHz Low Channel Y-Orientation

Title: FCC 15.249
File: Ankoza 21897-2 (5.11)(EIS) FCC15.249 WLAN 2400(b) Tok-low_X 2008-07-24 -3-18.net
Operator: AIR_AAL_EMS_TL1, vsp@101
EUT Type: Ankoza, FCC ID: IHDT56JV1, IMEI: 353977020000578
EUT Condition: Board Rev: P2
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCM mode
WLAN ch-1 (2412 MHz) TX mode @ 11Mbps/15dBm, Cr.-2
EMD 1115 antenna (30Hz - 18GHz), Peak detector used.

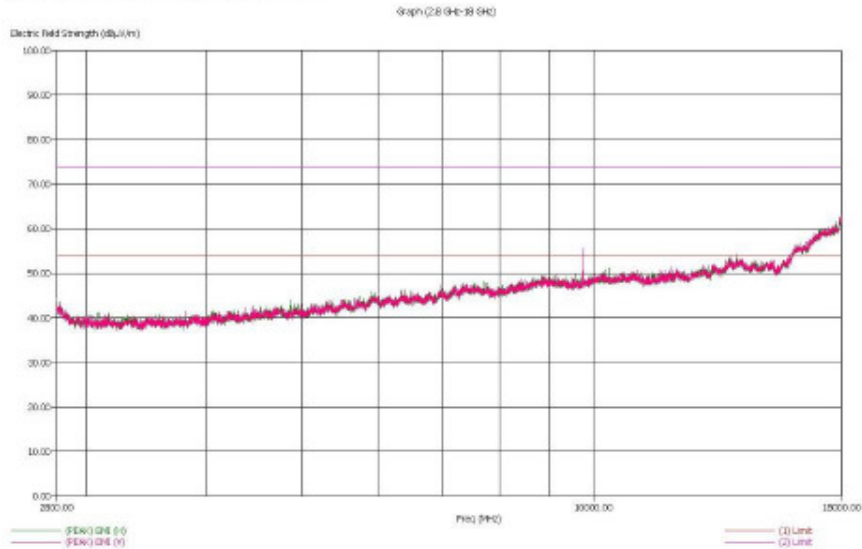
25-07-2008 14:45:27
Sequence: Preliminary Scan



3-18GHz Low Channel Z-Orientation

Title: FCC 15.249
File: Ankoza 21897-2 (5.11)(EIS) FCC15.249 WLAN 2400(b) Tok-mid_X 2008-07-24 -3-18.net
Operator: AIR_AAL_EMS_TL1, vsp@101
EUT Type: Ankoza, FCC ID: IHDT56JV1, IMEI: 353977020000678
EUT Condition: Board Rev: P2
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCM mode
WLAN ch-6 (2437 MHz) TX mode @ 11Mbps/15dBm, Cr.-0
EMD 1115 antenna (30Hz - 18GHz), Peak detector used.

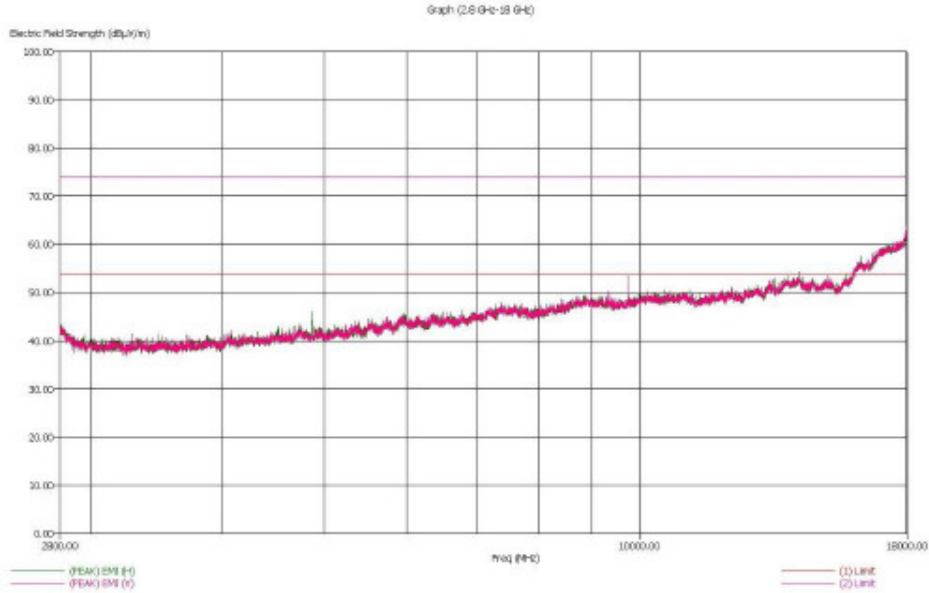
25-07-2008 15:42:30
Sequence: Preliminary Scan



3-18GHz Middle Channel X-Orientation

Title: FCC 15.249
File: Ashoka 21897-2 (5.31)(E2U) FCC15.249 WLAN 2400(b) Tab-mid_Y 2008-07-24 -3-18.net
Operator: ADM_AAL_EMC_TL1. uav001
EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 353977020000578
EUT Condition: Board Rev: F2
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode
WLAN ch-6 (2437 MHz) TX mode @ 11Mbps/15dBm. Or.*Y
EMC0 3115 antenna (30Hz - 18GHz). Peak detector used.

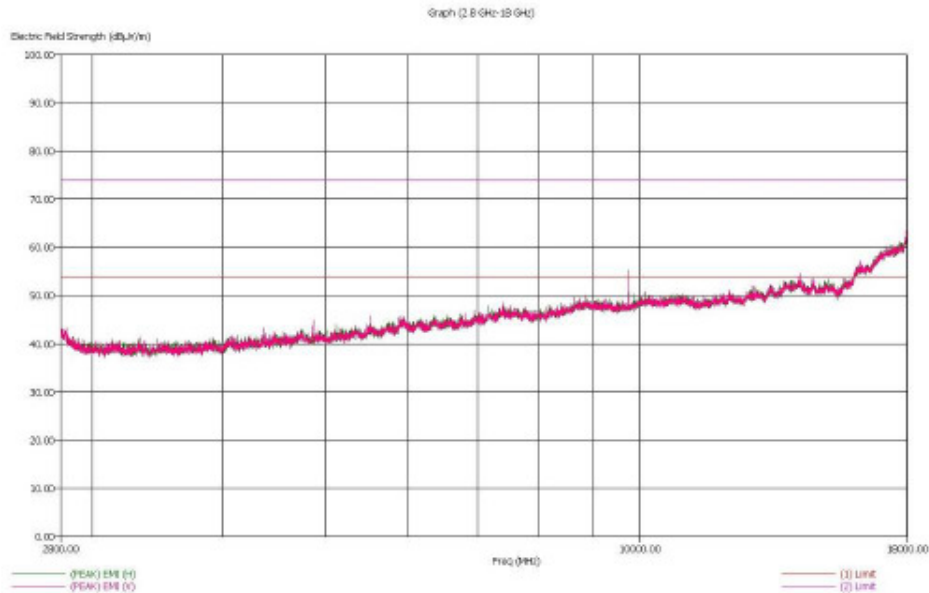
25-07-2008 16:10:05
Sequence: Preliminary Scan



3-18GHz Middle Channel Y-Orientation

Title: FCC 15.249
File: Ashoka 21897-2 (5.31)(E2U) FCC15.249 WLAN 2400(b) Tab-mid_Z 2008-07-24 -3-18.net
Operator: ADM_AAL_EMC_TL1. uav001
EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 353977020000578
EUT Condition: Board Rev: F2
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode
WLAN ch-6 (2437 MHz) TX mode @ 11Mbps/15dBm. Or.*Z
EMC0 3115 antenna (30Hz - 18GHz). Peak detector used.

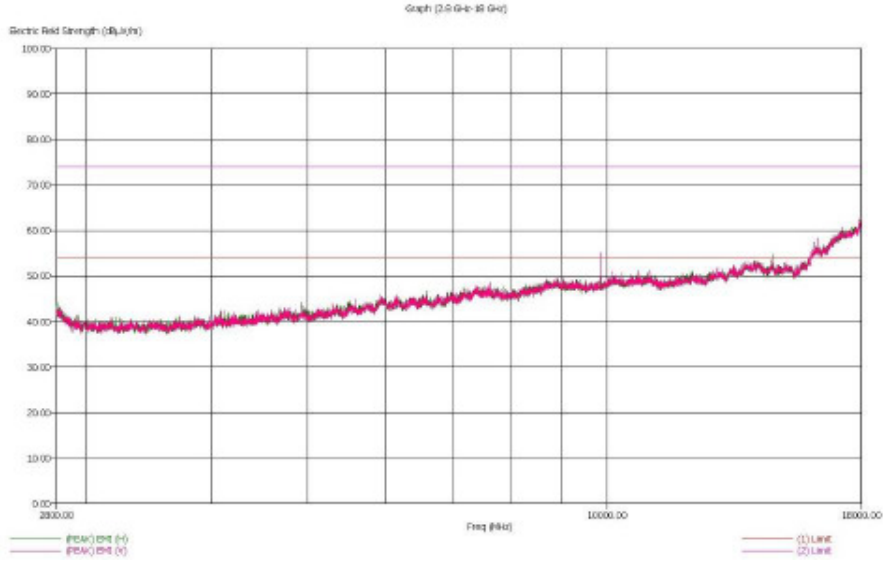
25-07-2008 15:33:26
Sequence: Preliminary Scan



3-18GHz Middle Channel Z-Orientation

Title: FCC 15.249
File: Aduka 21897-2 [5.31](EMI) FCC15.249 WLAN 2400(b) Tch-hgh_X 1003-07-28 -3-16.mat
Operator: ADR_RAL_EMC_ILI, us001
EUT Type: Aduka, FCC ID: IHDT56JV1, IMEI: 351977020100579
EUT Condition: RoHS2 Part: P2
Comments: FCC 15.249/ EMI 102.11(b) WLAN emission in TCM mode
WLAN ca-11 (2462 MHz) TX mode @ 1Wdpm/15dBm. Or-X
EMC 1115 antenna (3GHz - 18GHz). Peak detector used.

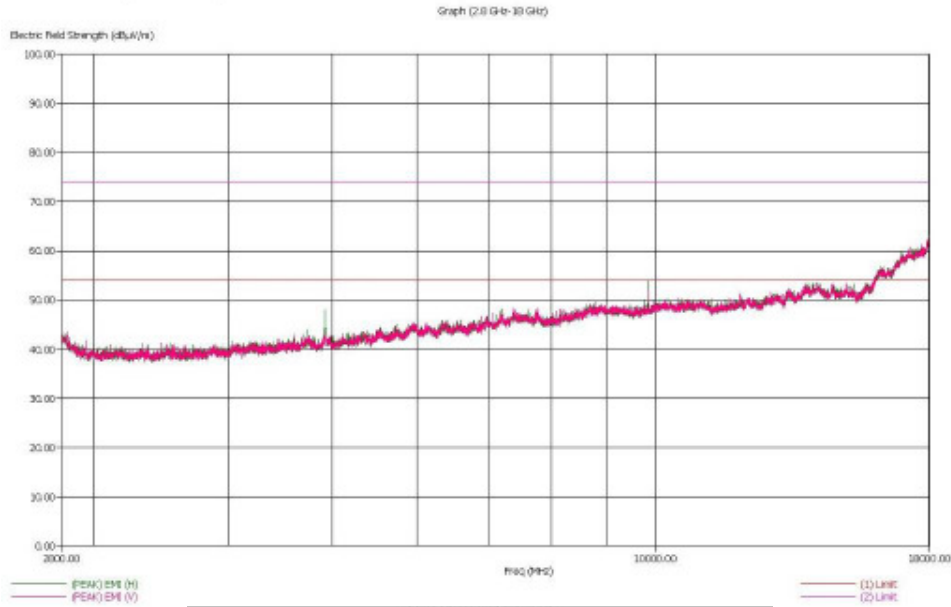
25-07-2008 16:56:18
Sequence: Preliminary Scan



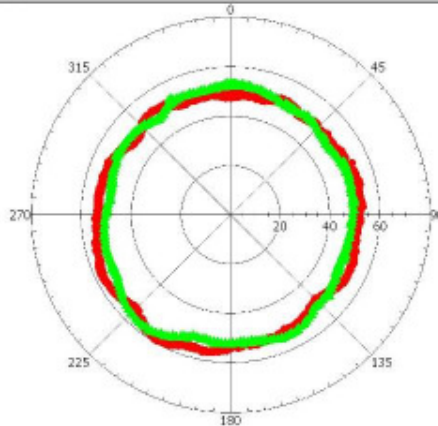
3-18GHz High Channel X-Orientation

Title: FCC 15.249
 File: Ashoka 21897-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tch-hgh_Y 2008-07-24 -3-18.net
 Operator: ADR_AAL_ENC_TL1. use001
 EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 35397702000578
 EUT Condition: Board Rev: P2
 Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode
 WLAN ch-11 (2462 MHz) TX mode @ 11Mbps/15dBm, 0r.-Y
 EMC0 3115 antenna (30Hz - 18GHz). Peak detector used.

25-07-2008 15:06:20
 Sequence: Preliminary Scan



Pattern Graph
 Ashoka 21897-2, (b) hgh_Y
 9848.02 MHz H 9847.89 MHz V



Title: FCC 15.249
 File: Ashoka 21897-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tch-hgh_Y 2008-07-24 -3-18 -AV.set
 Operator: ADR_AAL_ENC_TL1. use001
 EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 35397702000578
 EUT Condition: Board Rev: P2
 Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode
 WLAN ch-11 (2462 MHz) TX mode @ 11Mbps/15dBm, 0r.-Y
 EMC0 3115 antenna (30Hz - 18GHz). AV detector.

28-07-2008 11:05:41
 Sequence: Final Measurements

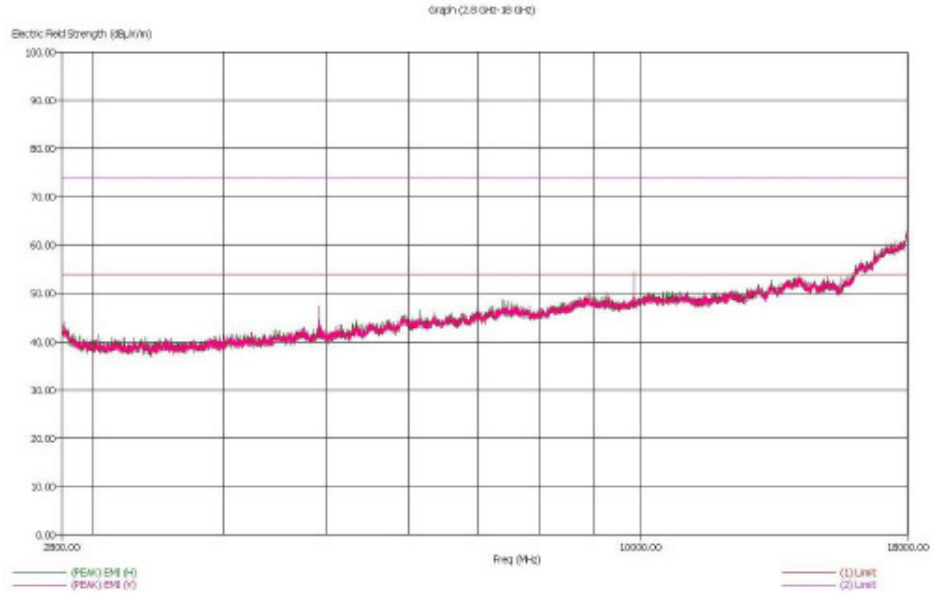
Ashoka 21897-2, (b) hgh_Y - Table

Freq (MHz)	Freq (fMax) (MHz)	(AVG) EMI (dBµV/m)	(L) Limit (dBµV/m)	(AVG) Margin Lim1 (dB)	Tbt Agl (deg)	Pol
9848.00	9848.02	56.34	54.00	2.34	211.60	H
9848.00	9847.89	53.31	54.00	-0.69	215.60	V

3-18GHz High Channel Y-Orientation
 (4.th harmonic see Appendix 2)

Title: FCC 15.249
File: Ashoka 21897-2 (5.31)(EIR) FCC15.249 WLAN 2400(b) Teh-hgh_Z 2010-07-24 -3-18.set
Operator: AML_AML_EMC_TL1. usv001
EUT Type: Ashoka, FCC ID: [IHDT56JV1, DME]: 353977020000578
EUT Condition: Board Rev: F2
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode
WLAN ch-11 (2462.16Hz) TX mode @ 11Mbps/15dBm, Cr=-2
EMC 3113 antenna (31Hz - 18GHz). Peak detector used.

25-07-2008 15:15:58
Sequence: Preliminary Scan



3-18GHz High Channel Z-Orientation

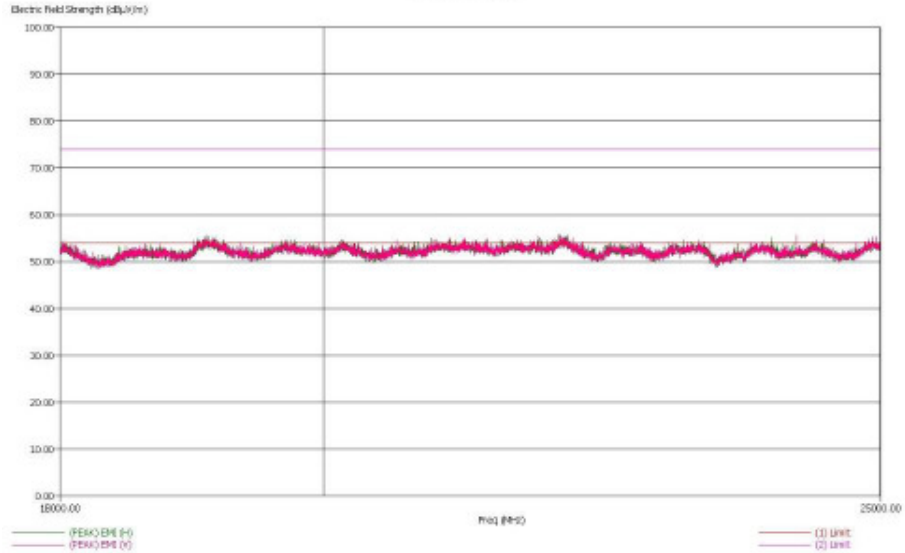
There were no discernible emissions above the noise floor for 18-26 GHz for Low, Mid and High Channels and all polarizations in Bluetooth band

Only one worst case plot for each test frequency are shown in the below plots in the range from 18 GHz – 26 GHz.

Title: FCC 15.249
File: Ashoke 21897-2 (5.31)[ESU] FCC15.249 WLAN 2400(b) Tok-low_X 2008-07-24 -18-25.net
Operator: AIR_AAL_EMC_T11_ssv001
EUT Type: Ashoke, FCC ID: IHDT56JV1, DNI: 35397702000578
EUT Condition: Board Rev: P2
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode
WLAN ch-1 (2412 MHz) TX mode @ 11Mbps/154km, Cr.-X
EMC 3118 antenna (18GHz - 25GHz). Peak detector used.

28-07-2008 15:51:18
Sequence: Preliminary Scan

Graph (18 GHz-25 GHz)

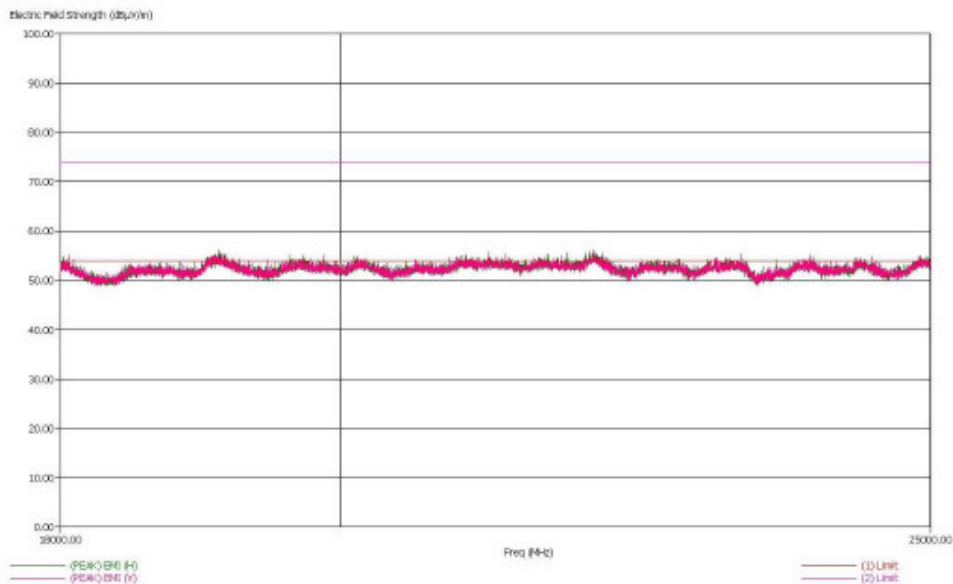


18-25GHz Low Channel X-Orientation

Title: FCC 15.249
File: Ashoke 21897-2 (5.31)[ESU] FCC15.249 WLAN 2400(b) Tok-mid_X 2008-07-24 -18-25.net
Operator: AIR_AAL_EMC_T11_ssv001
EUT Type: Ashoke, FCC ID: IHDT56JV1, DNI: 35397702000578
EUT Condition: Board Rev: P2
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode
WLAN ch-6 (2437 MHz) TX mode @ 11Mbps/154km, Cr.-X
EMC 3118 antenna (18GHz - 25GHz). Peak detector used.

28-07-2008 15:26:22
Sequence: Preliminary Scan

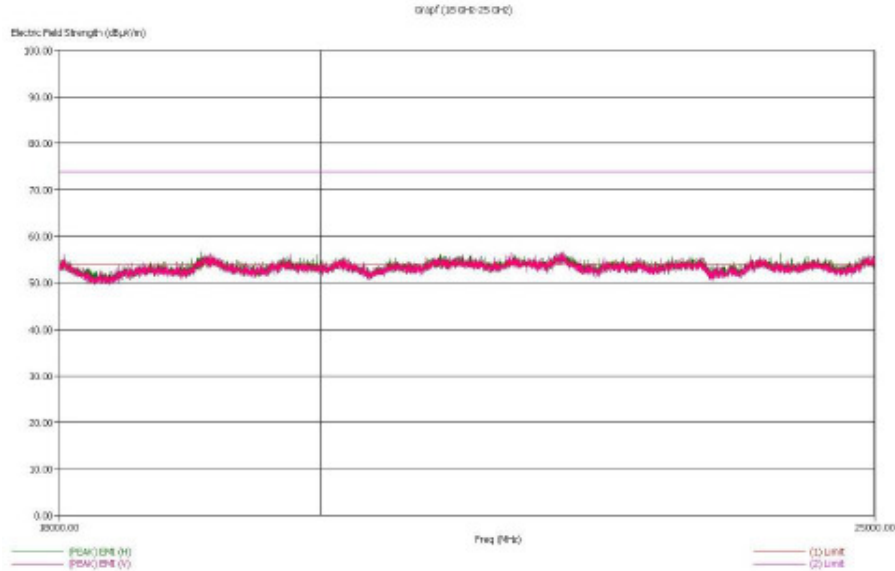
Graph (18 GHz-25 GHz)



18-25GHz Middle Channel X-Orientation

Title: FCC 15_245
 File: Ashoka 21897-2 (5_31)(ESJ) FCC15-249 WLAN 2400(b) Tol-hgh_X 2008-07-29 -18-25.sor
 Operator: ADI_AAI_EMC_TLL_000001
 EUT Type: Ashoka, FCC ID: IHDT56JV1, DNI: 353877320300378
 EUT Condition: Board Rev: P2
 Comments: FCC 15.245/ IEEE 802.11(b) WLAN emission in TCM mode
 WLAN ch-11 (2462 MHz) TX mode @ 11Mbps/154fm. Or.-X
 EMC 3116 antenna (180Hz - 25GHz); Peak detector used.

28-07-2008 14:56:11
 Sequence: Preliminary Book



18-25GHz High Channel X-Orientation

WLAN Band (g)

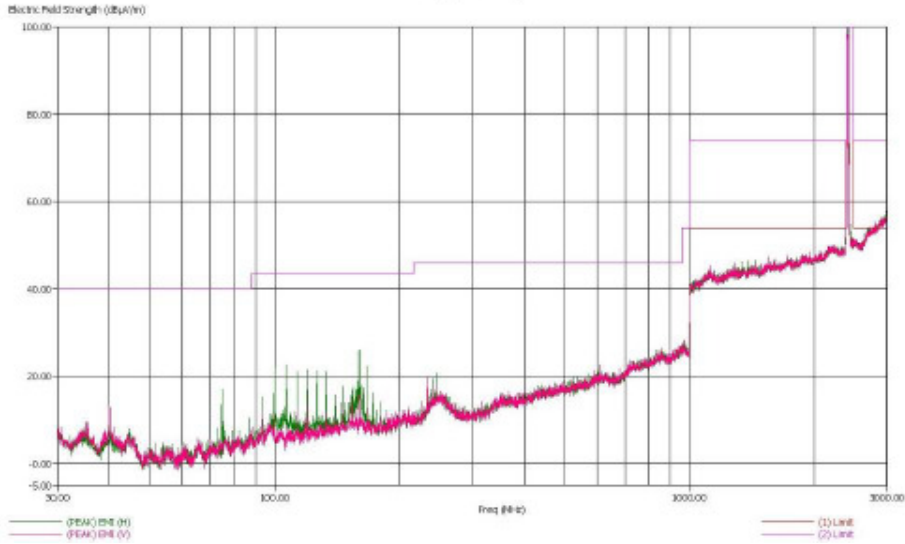
There were no discernible emissions above the noise floor for 30-3000MHz for Low, Mid and High Channels and all polarizations in WLAN band (g).

Only one worst case plot for each test frequency are shown in the below plots in the range from 30 MHz – 3000 MHz.

Title: FCC 15.249
File: Asboka 21897-2 (5.11)[E2] FCC15.249 WLAN 2400(g) Tch-low_Y 2008-07-24 -3.mat
Operator: ADR_LAL_EMC_T11_480001
EUT Type: Asboka, FCC ID: IHDT56JV1, IMEI: 353977020009578
EUT Condition: Board Rev: P2
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode
WLAN ch-1 (2412 MHz) TX mode @ 30Mbps/15dBm, Gr.+2
HLP 3013C antenna (30MHz - 3 GHz), Peak detector used,
Receiver attenuation int. -10dB from 1GHz to 3GHz.

24-07-2008 10:24:07
Sequence: Preliminary Scan

Graph (30 MHz-3 GHz)

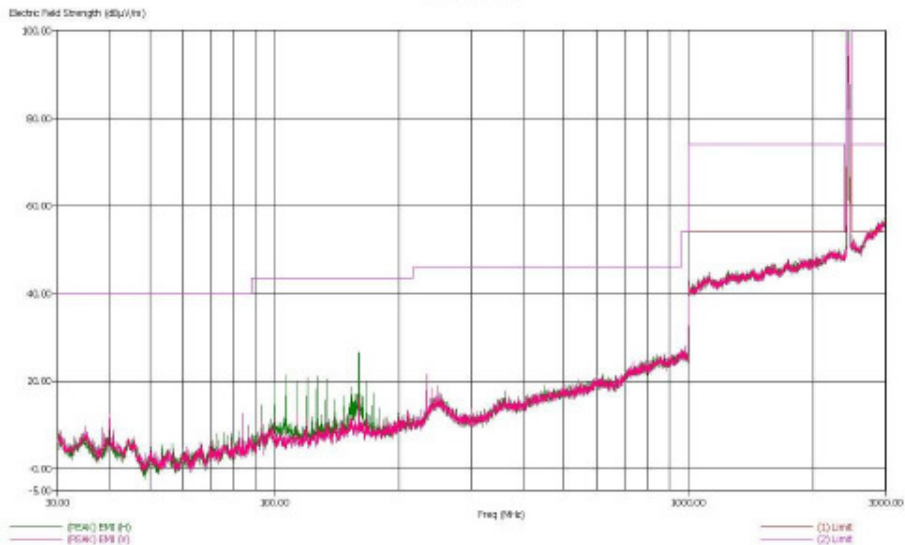


30 - 3000MHz Low Channel Dual Polarization Y

Title: FCC 15.249
File: Asboka 21897-2 (5.33)[E2] FCC15.249 WLAN 2400(g) Tch-mid_Y 2008-07-24 -3.mat
Operator: ADR_LAL_EMC_T11_480001
EUT Type: Asboka, FCC ID: IHDT56JV1, IMEI: 353977020009578
EUT Condition: Board Rev: P2
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode
WLAN ch-6 (2437 MHz) TX mode @ 30Mbps/15dBm, Gr.+2
HLP 3013C antenna (30MHz - 3 GHz), Peak detector used,
Receiver attenuation int. -10dB from 1GHz to 3GHz.

24-07-2008 11:28:26
Sequence: Preliminary Scan

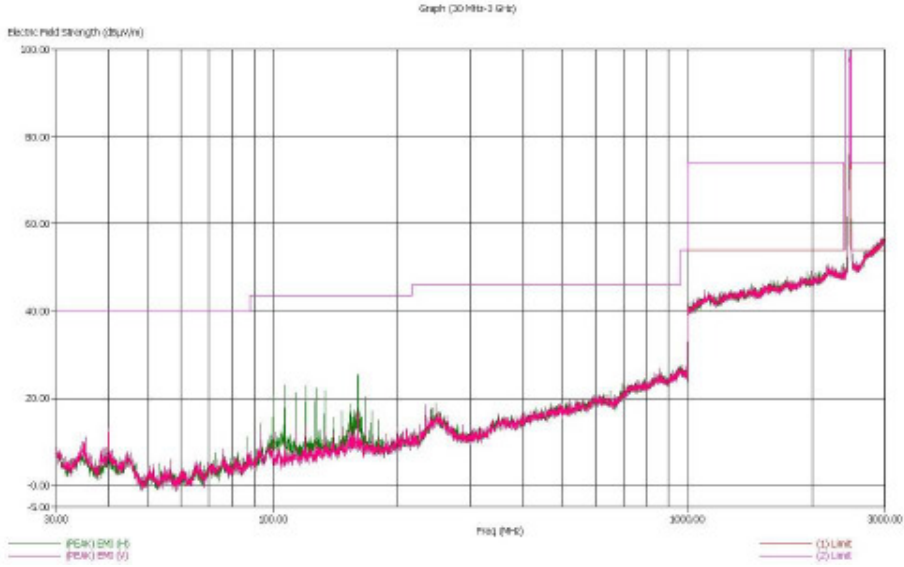
Graph (30 MHz-3 GHz)



30 - 3000MHz Middle Channel Dual Polarization Y

Title: FCC 15.249
File: Anboka 21897-2 (5.31)(ESU) FCC15.249 WLAN 2400(g) Tch-hgh_V 2008-07-24 -3.net
Operator: ADQ_AAL_EMS_T51_swr001
EUT Type: Anboka, FCC ID: IHDT56JV1, EMEI: 353977021000578
EUT Condition: Board Rev: P2
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode
WLAN ch-13 (2462 MHz) TCH mode @ 50Mbps/15dBm, Cr.-Y
RFP 30000 antennas (30MHz - 3 GHz), Peak detector used.
Receiver attenuation int. -10dB from 10Hz to 30Hz.

24-07-2008 12:13:48
Sequence: Preliminary Scan

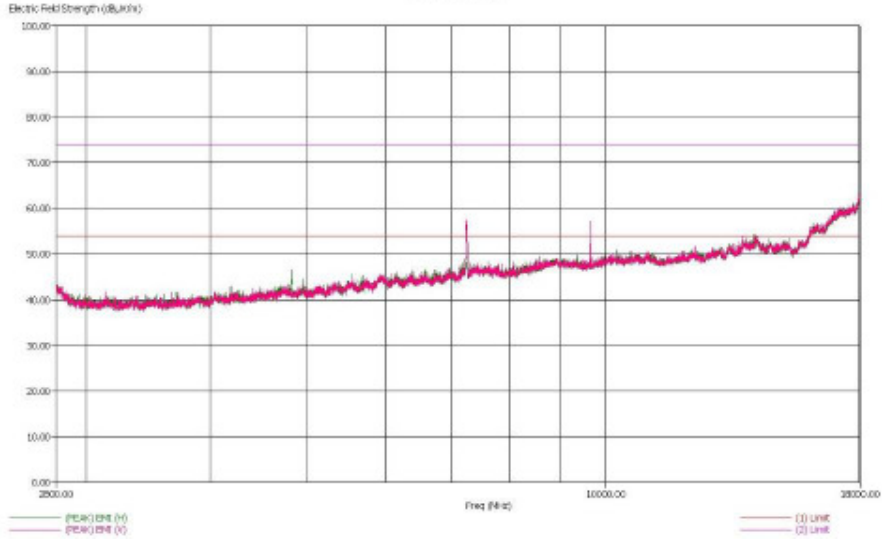


30 - 3000MHz High Channel Dual Polarization Y

Title: FCC 15.249
File: Ashoka 21897-2 (5.31)(ESJ) FCC15.249 WLAN 2400(g) Tck-low_X 2008-07-24 -3-18.net
Operator: ADL_AAL_EMC_TL1, sev011
EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 35397702000578
EUT Conditions: Board Rev: P2
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCM mode
WLAN ch-1 (2412 MHz) TX mode @ 30Mbps/15dBm, Or.-X
EMC 3115 antenna (30Hz - 18GHz), Peak detector used.

24-07-2008 14:26:30
Sequence: Preliminary Scan

Graph (28 GHz-18 GHz)

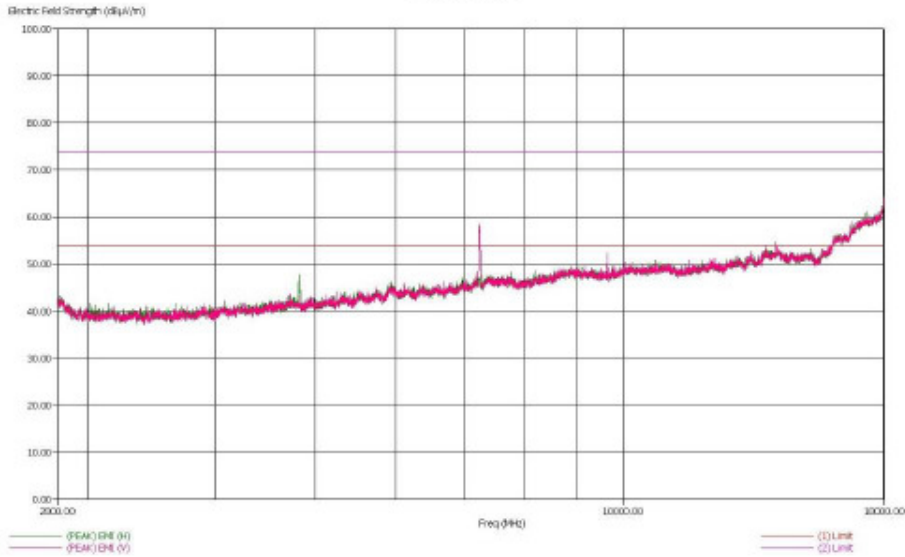


3-18GHz Low Channel X-Orientation

Title: FCC 15.249
File: Ashoka 21897-2 (5.31)(ESJ) FCC15.249 WLAN 2400(g) Tck-low_Y 2008-07-24 -3-18.net
Operator: ADL_AAL_EMC_TL1, sev011
EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 35397702000578
EUT Conditions: Board Rev: P2
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCM mode
WLAN ch-1 (2412 MHz) TX mode @ 30Mbps/15dBm, Or.-Y
EMC 3115 antenna (30Hz - 18GHz), Peak detector used.

24-07-2008 14:26:30
Sequence: Preliminary Scan

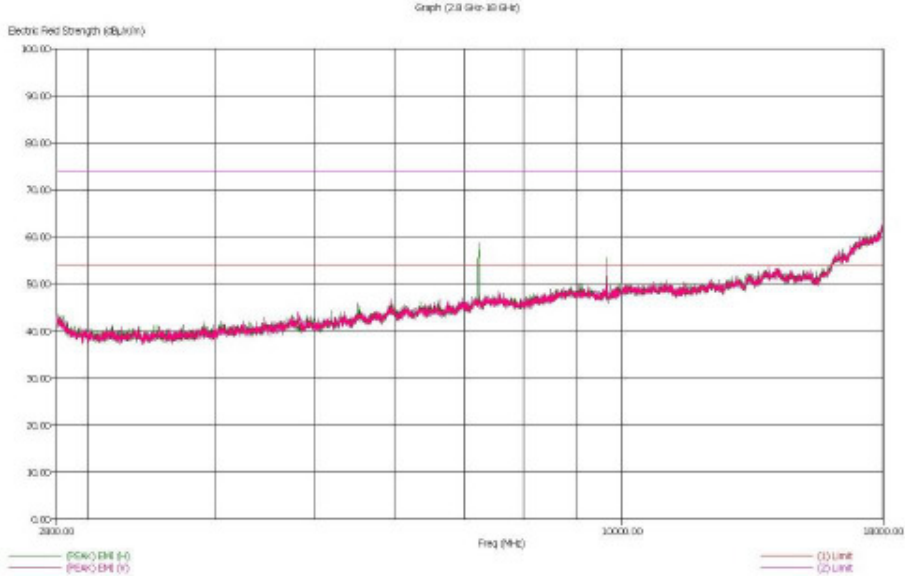
Graph (28 GHz-18 GHz)



3-18GHz Low Channel Y-Orientation

Title: FCC 15.249
File: Anboka 21997-2 (5.31)(ESF) FCC15.249 WLAN 2400(g) Tok-low_Z 2006-07-24 -3-18.net
Operator: ADI_LAN_EMC_TL1.usa0101
EUT Type: Anboka, FCC ID: IHDT56JV1, IMEI: 353977020100578
EUT Conditions: Board Rev: P2
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode
WLAN ch-1 (2412 MHz) TX mode @ 20Mbps/15dBm, Dr.-2
EMC 3115 antenna (30Hz - 18GHz), Peak detector used.

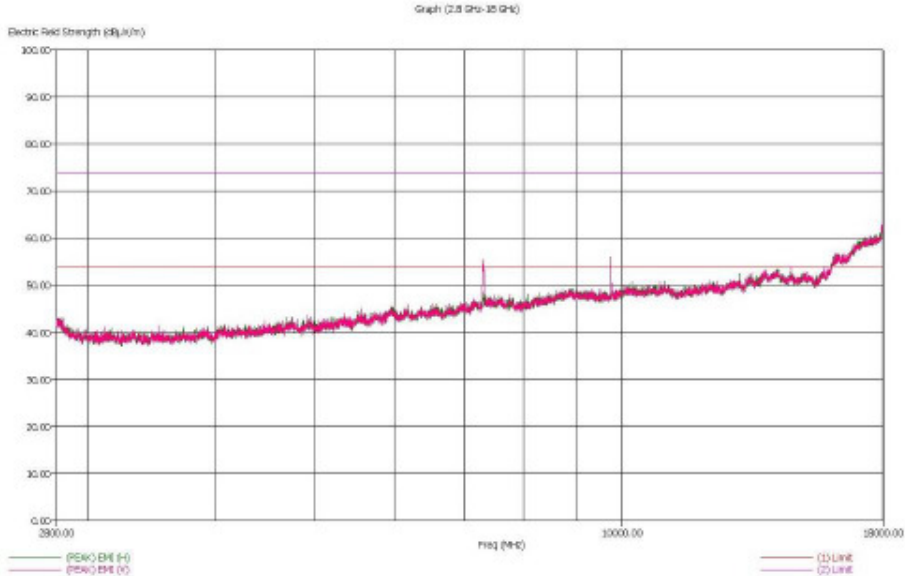
24-07-2006 14:44:53
Sequence: Preliminary Scan



3-18GHz Low Channel Z-Orientation

Title: FCC 15.249
File: Anboka 21997-2 (5.31)(ESF) FCC15.249 WLAN 2400(g) Tok-mid_X 2006-07-24 -3-18.net
Operator: ADI_LAN_EMC_TL1.usa0101
EUT Type: Anboka, FCC ID: IHDT56JV1, IMEI: 353977020100578
EUT Conditions: Board Rev: P2.0
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode
WLAN ch-6 (2437 MHz) TX mode @ 20Mbps/15dBm, Dr.-0X
EMC 3115 antenna (30Hz - 18GHz), Peak detector used.

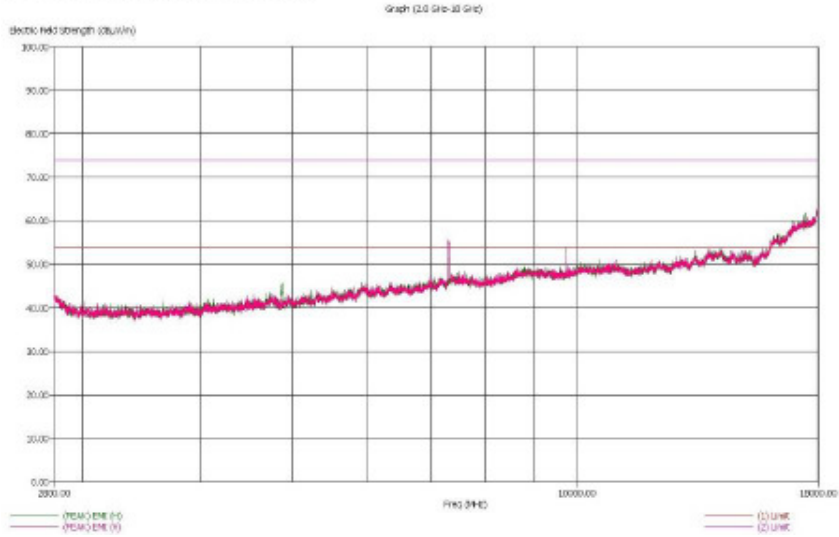
24-07-2006 15:12:06
Sequence: Preliminary Scan



3-18GHz Middle Channel X-Orientation

Title: FCC 15.249
File: Ashoka 21097-2 (5.31)(ESU) FCC15.249 WLAN 2400(g) Tech-std_Y 2008-07-24 -3-10.net
Operator: ADI_AAL_EMC_TL1_suv031
EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 35397702000578
EUT Condition: Board Rev: P2.0
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCM mode
WLAN ch 6 (2437 MHz) TX mode B 36Mbps/15dBm, Cr.-Y
EN50 3115 antenna (30Hz - 100Hz), Peak detector used.

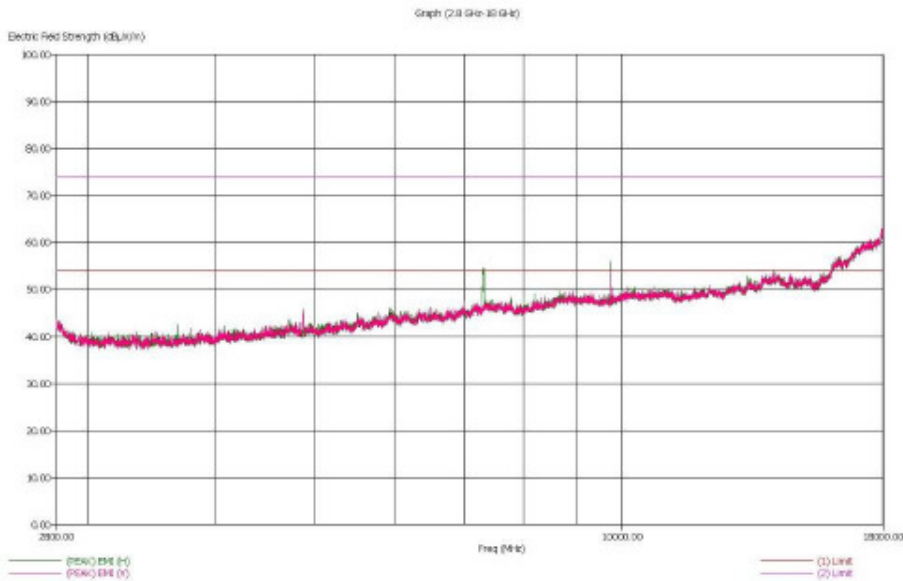
24-07-2008 15:02:49
Sequence: Preliminary Scan



3-18GHz Middle Channel Y-Orientation

Title: FCC 15.249
File: Ashoka 21097-2 (5.31)(ESU) FCC15.249 WLAN 2400(g) Tech-std_Z 2008-07-24 -3-10.net
Operator: ADI_AAL_EMC_TL1_suv031
EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 35397702000578
EUT Condition: Board Rev: P2.0
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCM mode
WLAN ch 6 (2437 MHz) TX mode B 36Mbps/15dBm, Cr.-Z
EN50 3115 antenna (30Hz - 100Hz), Peak detector used.

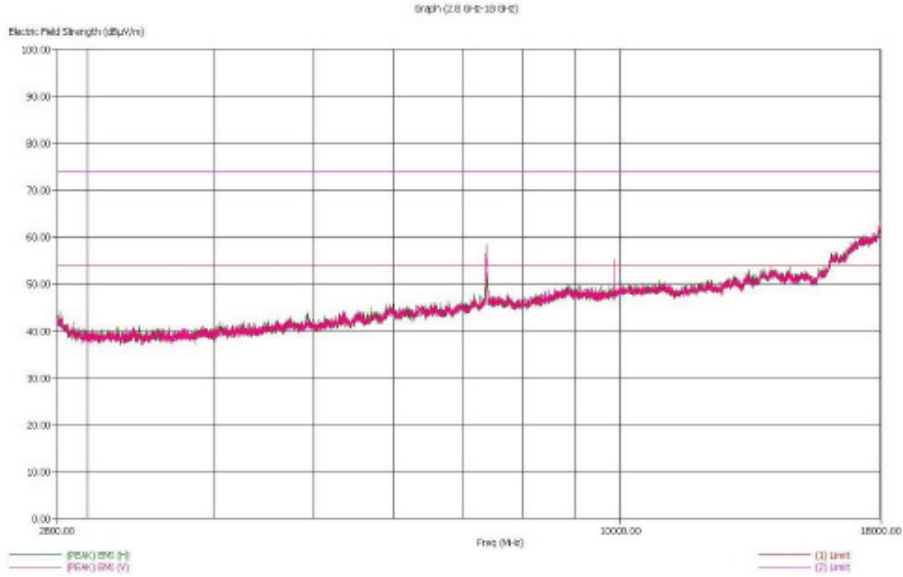
24-07-2008 14:54:39
Sequence: Preliminary Scan



3-18GHz Middle Channel Z-Orientation

Title: FCC 15.249
File: Anshu 21897-2 (5.31)(ESU) FCC15.249 WLAN 2400(g) Tch-hgh_X 2018-07-24 -3-18.net
Operator: ARI_AAL_EMI_TL1_suv001
EUT Type: Anshu, FCC ID: IHDT56JV1, IMEI: 353977021001578
EUT Condition: Board Rev: P2
Comments: FCC 15.249-1 EIRP 302.11(g) WLAN emission in TCH mode
WLAN ch-11 (2462 MHz) TX mode B 30Mbps/154Ms, Cr.=2
EM50 2115 antenna (30dB - 18dB). Peak detector used.

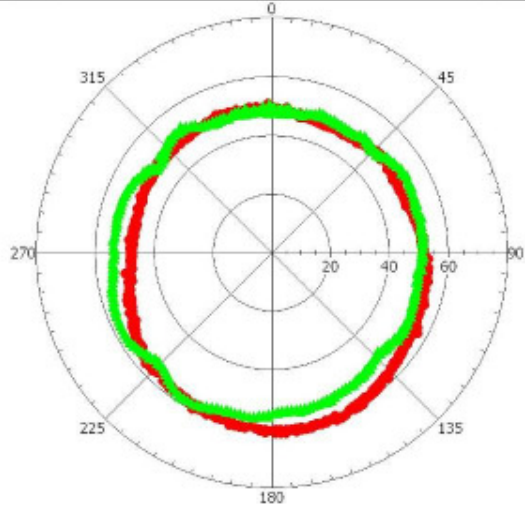
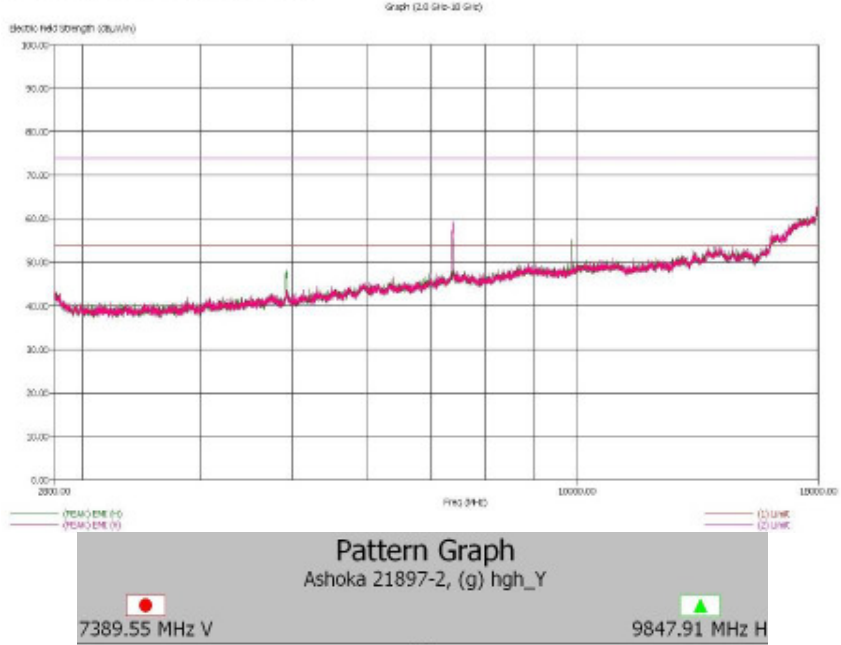
24-07-2018 16:36:10
Sequence: Preliminary Scan



3-18GHz High Channel X-Orientation

Title: FCC 15.249
 File: Ashoka 21897-2 (5.31)(ESU) FCC15.249 WLAN 2400(g) Tch-hgh_Y 2008-07-24 -3-10.set
 Operator: ADR_AAL_ENC_TL1.usv001
 EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 353977020000578
 EUT Condition: Board Rev: P2
 Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode
 WLAN ch-11 (2462 MHz) TX mode @ 30Mbps/15dBm, Cr.+Y
 EMC0 3115 antenna (30Hz - 100Hz), Peak detector used.

24-07-2008 16:26:23
 Sequence: Preliminary Scan



Title: FCC 15.249
 File: Ashoka 21897-2 (5.31)(ESU) FCC15.249 WLAN 2400(g) Tch-hgh_Y 2008-07-24 -3-10 -AV -3.4bar.set
 Operator: ADR_AAL_ENC_TL1.usv001
 EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 353977020000578
 EUT Condition: Board Rev: P2
 Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode
 WLAN ch-11 (2462 MHz) TX mode @ 30Mbps/15dBm, Cr.+Y
 EMC0 3115 antenna (30Hz - 180Hz), AV detector.

25-07-2008 08:52:58
 Sequence: Final Measurements

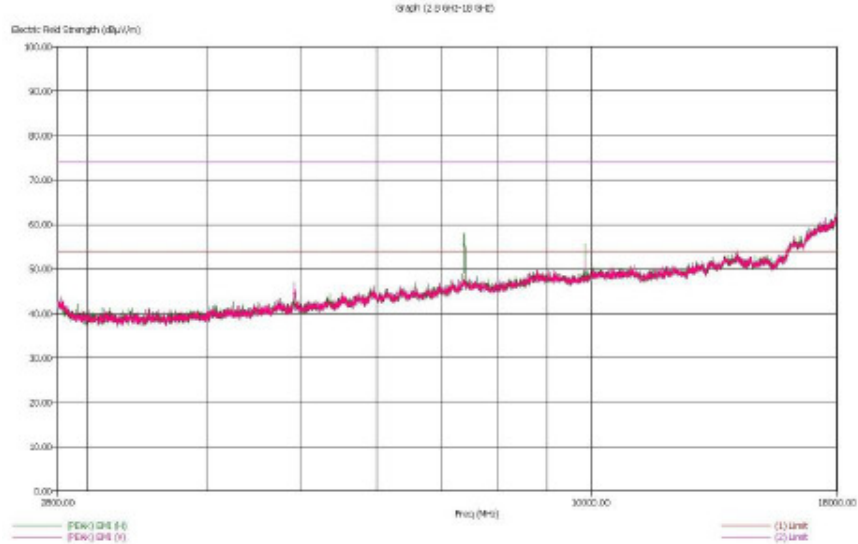
Ashoka 21897-2, (g) hgh_Y - Table

Freq (MHz)	Freq (Max) (MHz)	(AVG) EMI (dBμV/m)	(1) Limit (dBμV/m)	(AVG) Margin Lim1 (dB)	Totl Agl (deg)	Pol
7390.00	7389.55	46.61	54.00	-7.39	175.40	V
9848.00	9847.91	55.52	54.00	1.52	211.20	H

3-18GHz High Channel Y-Orientation
 (4.th harmonic see Appendix 2)

Title: FCC 15.249
File: Ashtoko 21897-2 (5.31)(ESU) FCC15.249 WLAN 2498[g] Tek-tkg_LZ 2010-07-24 -3-10.net
Operator: AIRL.AAL.DNS.LLL, sse001
EMI Type: Ashtoko, FCC ID: IHDT56JV1, IMEI: 35197021000578
EMI Condition: Search Sweep F2
Comment: FCC 15.249: IEEE 802.11(g) WLAN emission in TCM mode
WLAN ch-11 (2462 MHz) TX mode @ 300bps/154km. Cr.-C
EMC 3115 antenna (32Hz - 18GHz). Peak detector used.

24-07-2010 16:16:51
Reported: Preliminary Data



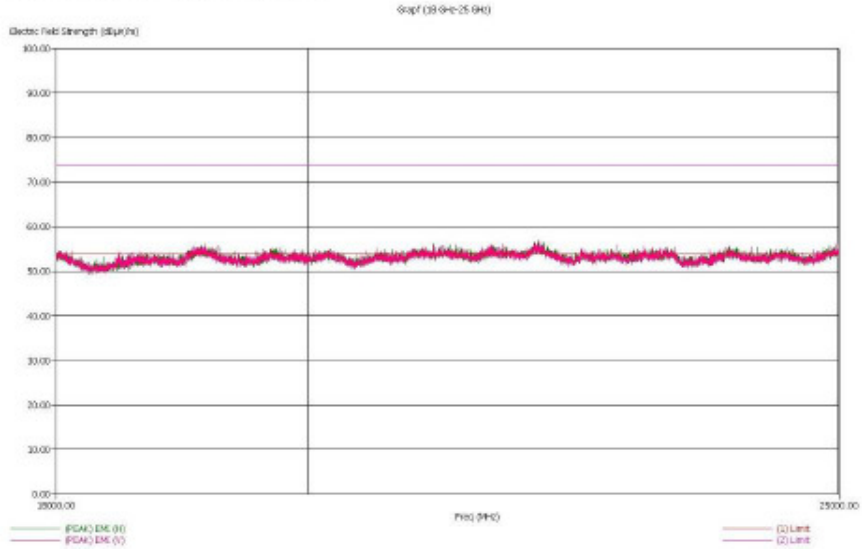
3-18GHz High Channel Z-Orientation

There were no discernible emissions above the noise floor for 18-26 GHz for Low, Mid and High Channels and all polarizations in Bluetooth band

Only one worst case plot for each test frequency are shown in the below plots in the range from 18 GHz – 26 GHz.

Title: FCC 15.249
File: Ashoka 21897-2 (5.11) (ES) FCC15.249 WLAN 2401(g) Test-log_V 2008-07-24 -18-25.net
Operator: AIR_ML_EMS_TLI_sav01
EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 35397021000576
EUT Condition: Board Rev: P2
Comment: FCC 15.249 IEEE 802.11(g) WLAN emission in TCH mode
WLAN ch=1 (2412 MHz) TX mode @ 200Mbps-15dBm, 0r,-V
EMC 3116 antenna (180Hz - 250Hz), Peak detector used.

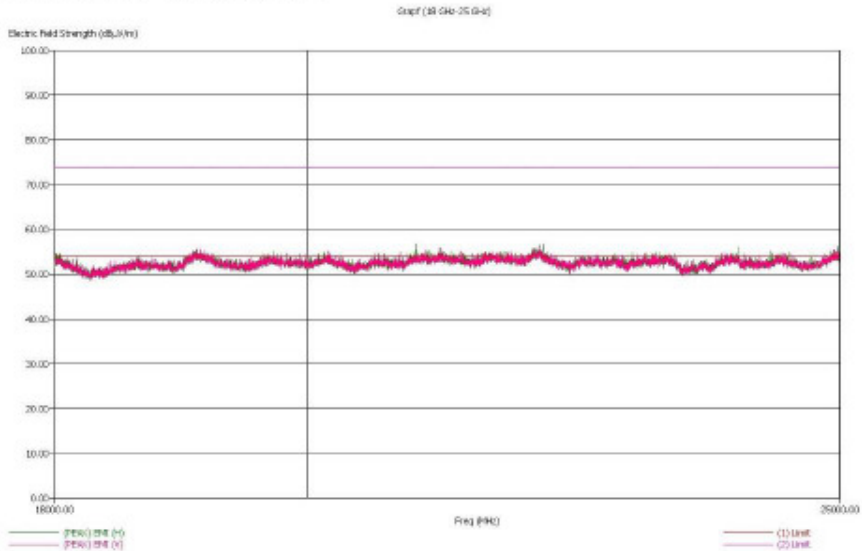
25-07-2008 10:15:52
Sequence: Preliminary Scan



18-25GHz Low Channel Y-Orientation

Title: FCC 15.249
File: Ashoka 21897-2 (5.31) (ES) FCC15.249 WLAN 2401(g) Test-log_V 2008-07-24 -18-25.net
Operator: AIR_ML_EMS_TLI_sav01
EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 35397021000576
EUT Condition: Board Rev: P2
Comment: FCC 15.249 IEEE 802.11(g) WLAN emission in TCH mode
WLAN ch=6 (2437 MHz) TX mode @ 180Mbps-15dBm, 0r,-V
EMC 3116 antenna (180Hz - 250Hz), Peak detector used.

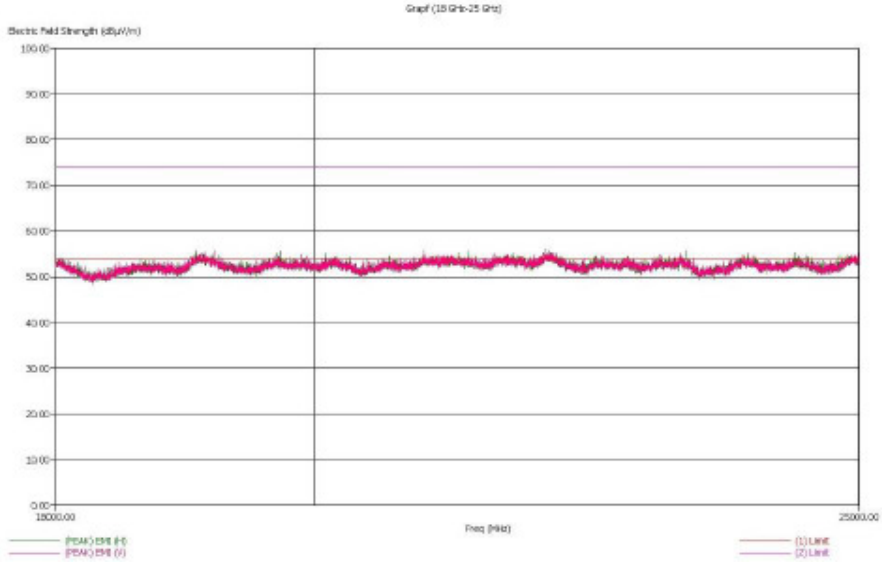
25-07-2008 10:45:00
Sequence: Preliminary Scan



18-25GHz Middle Channel Y-Orientation

Title: FCC 15.249
File: Asbata_11091-2 (5.311) (SBU) FCC15.249 WLAN 2401(p) Tech-high_Y 1000-07-24 -10-15.swb
Operator: ADI_AAI_EMC_TL1. usw001
EUT Type: Asbata. FCC ID: IHDT56JV1. IMEI: 353977021000578
EUT Condition: Board Rev: F2
Comments: FCC 15.249-102E 012.11(m) WLAN emission in TCH mode
WLAN ch-11 (2462 MHz) TX mode @ 100Mbps/154M. Cr.-Y
EMCO 3116 antenna (18GHz - 25GHz). Peak detector used.

25-07-2008 11:06:26
Sequence: Preliminary Scan



18-25GHz High Channel Y-Orientation

BAND-EDGE COMPLIANCE OF RF RADIATED EMISSIONS

CFR 47 Part 15.247

Measurement Procedure

The test sample is placed inside the semi-anechoic chamber on a wooden table at the turntable center. For each spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters and the turntable is rotated 360 degrees to obtain a maximum reading on the spectrum analyzer. This is repeated for both horizontal and vertical polarizations of the receive antenna.

$$\text{Field Strength (dB}\mu\text{V/m)} = \text{EMI Receiver Level (dB}\mu\text{V)} + \text{Cable Loss (dB)} + \text{Filter Loss (dB)} - \text{Amplifier Gain (dB)} + \text{Antenna Correction Factor (3/m)}$$

The test sample WLAN transmitter was enabled using a test script.

A fully charged battery was used for the supply voltage.

Measurement Results

Note: No WLAN band notch filters were used.

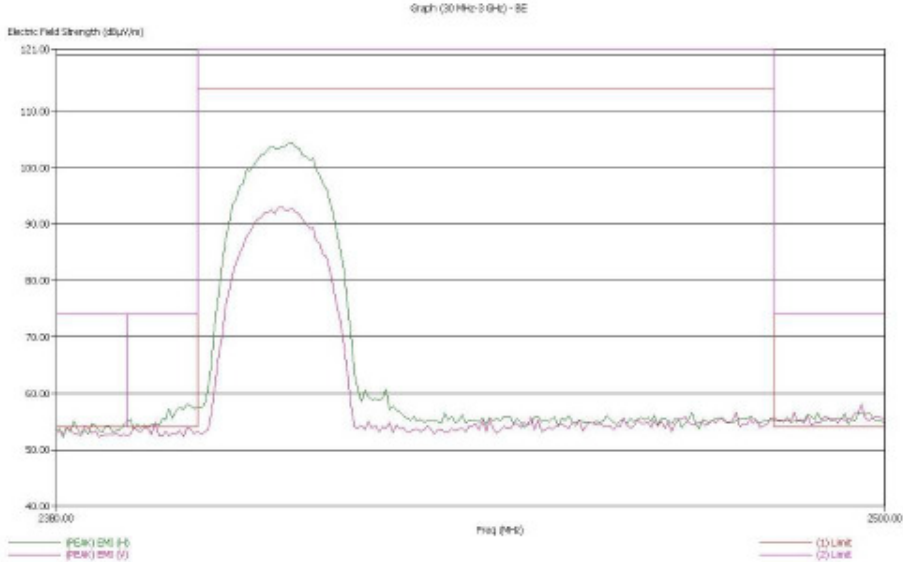
See Attached:

WLAN Band (b)

Only the worst band edge is displayed for WLAN band (b).

Title: FCC 15.249
File: Ashoka 21897-2 (5.21)(EMI) FCC15.249 WLAN 2400(b) Tot-low_X 2008-07-24 -3.set
Operator: ADL_AAL_EMC_TL1_sav001
EUT Type: Ashoka, FCC ID: IHDT56JV1, DMI: 353977020000578
EUT Condition: Board Rev: F2
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode
WLAN ch-1 (2412 MHz) TX mode @ 11Mbps/154dBm, Or.-X
H.P. 3013C antenna (30MHz - 3 GHz), Peak detector used.
Receiver attenuation int. -20dB from 10Hz to 30Hz.

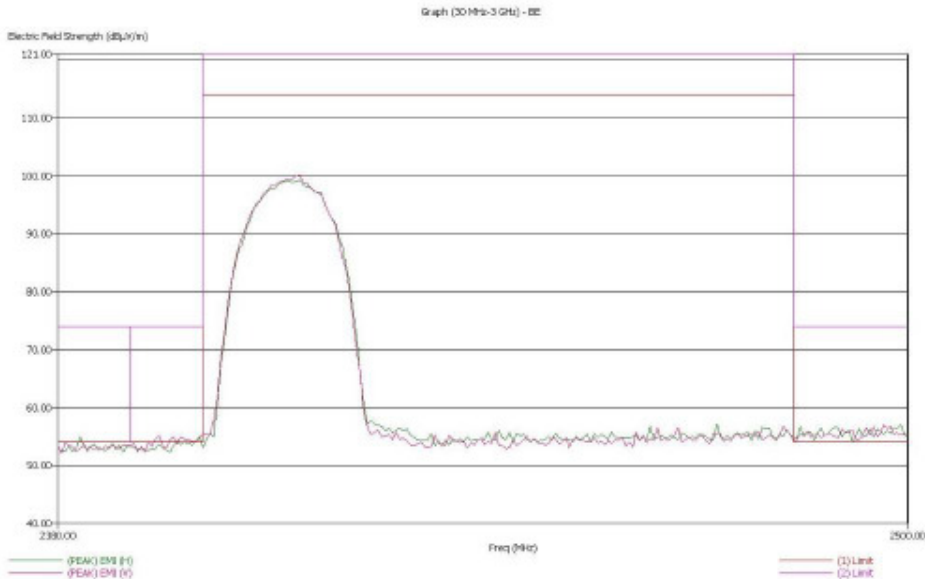
28-07-2008 12:05:23
Sequence: Preliminary Scan



Low Band Edge X-Orientation

Title: FCC 15.249
File: Ashoka 21897-2 (5.21)(EMI) FCC15.249 WLAN 2400(b) Tot-low_Y 2008-07-24 -3.set
Operator: ADL_AAL_EMC_TL1_sav001
EUT Type: Ashoka, FCC ID: IHDT56JV1, DMI: 353977020000578
EUT Condition: Board Rev: F2
Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode
WLAN ch-1 (2412 MHz) TX mode @ 11Mbps/154dBm, Or.-Y
H.P. 3013C antenna (30MHz - 3 GHz), Peak detector used.
Receiver attenuation int. -20dB from 10Hz to 30Hz.

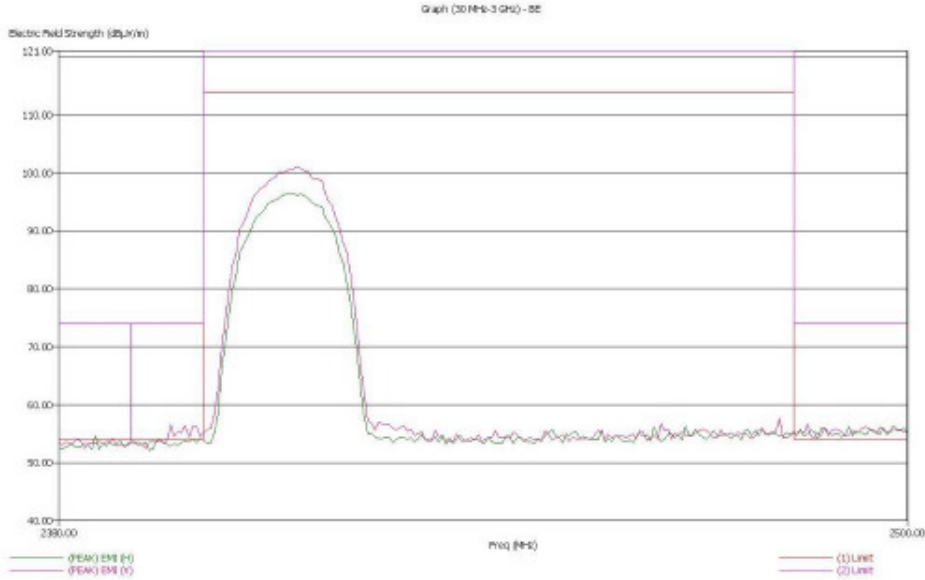
28-07-2008 12:18:51
Sequence: Preliminary Scan



Low Band Edge Y-Orientation

Title: FCC 15.249
 File: Ashoka 21897-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tch-low_Z 2008-07-24 -3.scs
 Operator: ADL_AAL_EMC_TL1_ssv001
 EUT Type: Ashoka, FCC ID: IHDT56JV1, DMI: 353977020000578
 EUT Condition: Board Rev: F2
 Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode
 WLAN ch-1 (2412 MHz) TX mode @ 110Mbps/15dBm, Dr.-Z
 HLP 3003C antenna (300MHz - 3 GHz), Peak detector used.
 Receiver attenuation int. -20dB from 1GHz to 3GHz.

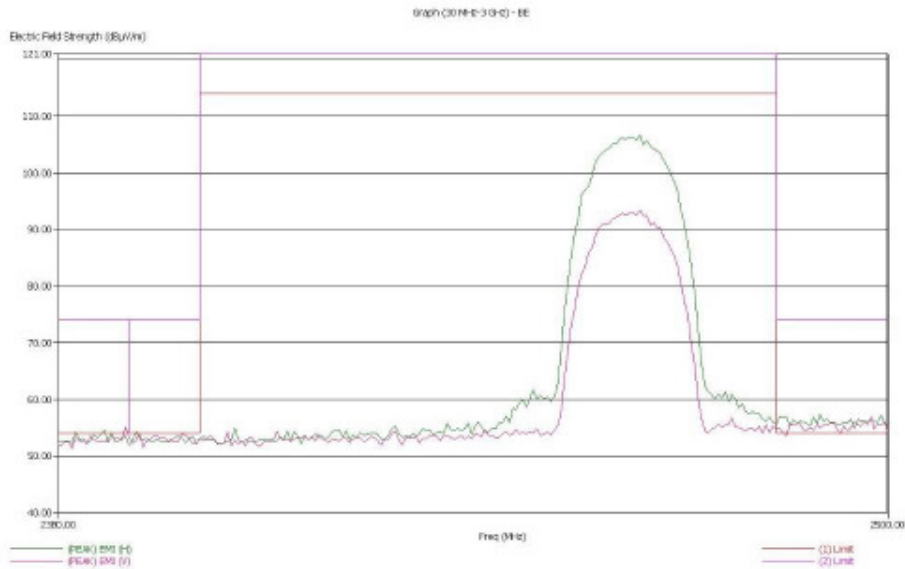
28-07-2008 12:59:49
 Sequence: Preliminary Scan



Low Band Edge Z-Orientation

Title: FCC 15.249
 File: Ashoka 21897-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tch-hgh_X 2008-07-24 -3.scs
 Operator: ADL_AAL_EMC_TL1_ssv001
 EUT Type: Ashoka, FCC ID: IHDT56JV1, DMI: 353977020000578
 EUT Condition: Board Rev: F2
 Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode
 WLAN ch-11 (2462 MHz) TX mode @ 110Mbps/15dBm, Dr.-X
 HLP 3003C antenna (300MHz - 3 GHz), Peak detector used.
 Receiver attenuation int. -20dB from 1GHz to 3GHz.

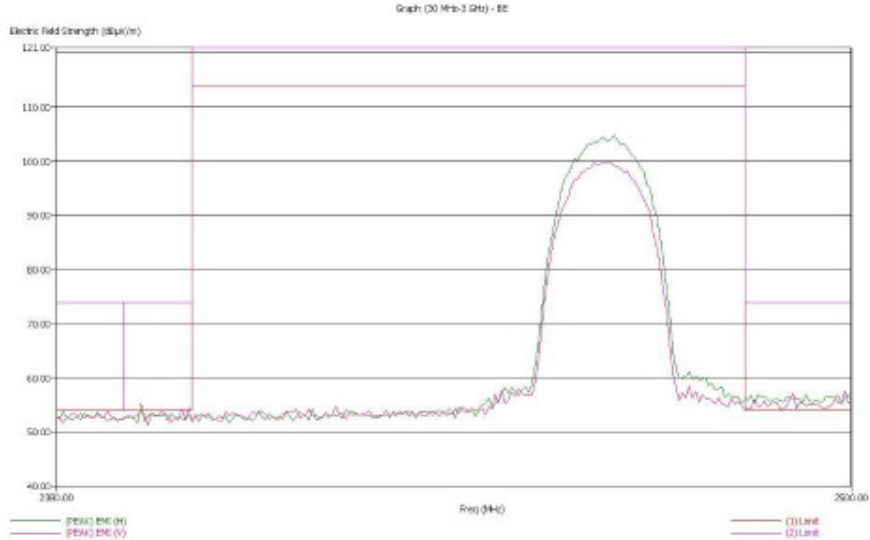
28-07-2008 14:01:37
 Sequence: Preliminary Scan



High Band Edge X-Orientation

Title: FCC 15.249
 File: Ashoka 21897-2 (5.21)(ESU) FCC15.249 WLAN 2400(b) Tch-igh_Y 2006-07-24 -3.set
 Operator: AIR_AAL_ENC_TL1, use001
 SUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 35167010001578
 SUT Condition: Spare Rev: P2
 Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode
 WLAN ch-11 (2462 MHz) TX mode @ 11Mbps/15dBm, Cr.-Y
 HLP 3000C antenna (30MHz - 3 GHz), Peak detector used.
 Receiver attenuation int. -20dB from 10Hz to 30Hz.

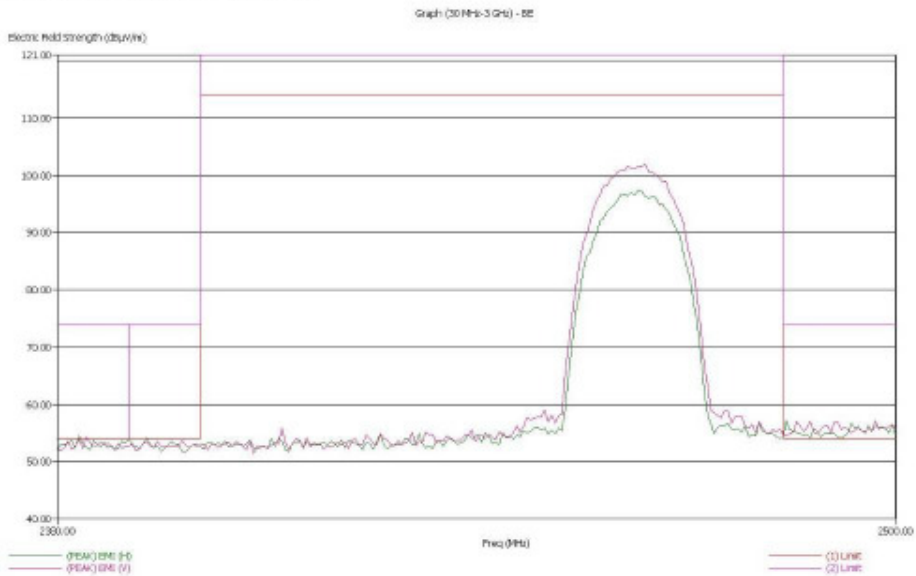
20-07-2008 14:15:49
 Sequence: Preliminary Scan



High Band Edge Y-Orientation

Title: FCC 15.249
 File: Ashoka 21897-2 (5.21)(ESU) FCC15.249 WLAN 2400(b) Tch-igh_Z 2006-07-24 -3.set
 Operator: AIR_AAL_ENC_TL1, use001
 SUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 35167010000578
 SUT Condition: Spare Rev: P2
 Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode
 WLAN ch-11 (2462 MHz) TX mode @ 11Mbps/15dBm, Cr.-Z
 HLP 3000C antenna (30MHz - 3 GHz), Peak detector used.
 Receiver attenuation int. -20dB from 10Hz to 30Hz.

20-07-2008 14:19:28
 Sequence: Preliminary Scan



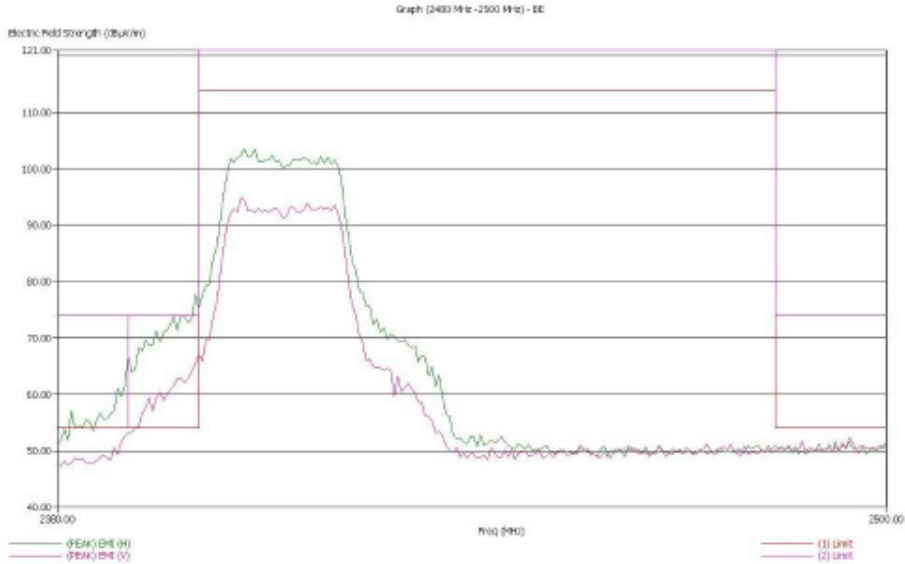
High Band Edge Z-Orientation

WLAN Band (g)

Only the worst band edge is displayed for WLAN band (g).

Title: FCC 15.249
File: Anixia 21897-2 (5.11)(E22) FCC15.249 WLAN 2400(g) Tck-low_X 2006-07-24 -3 -22.5deg_ant.
Operator: AIR_MAL_EHC_TL1_svf001
EUT Type: Axboko, FCC ID: IHDT56JV1, IMEI: 353977320100578
EUT Condition: Board Rev: P2
Comments: FCC 15.249(a) IEEE 802.11(g) WLAN emission in TCH mode
WLAN ch-1 (2412 MHz) TX mode @ 30Mbps/15dBm, Or.<Y
RFP 3103C antenna (30MHz - 3 GHz), Peak detector used,
Receiver attenuation 1st, -10dB from 10Hz to 30Hz.

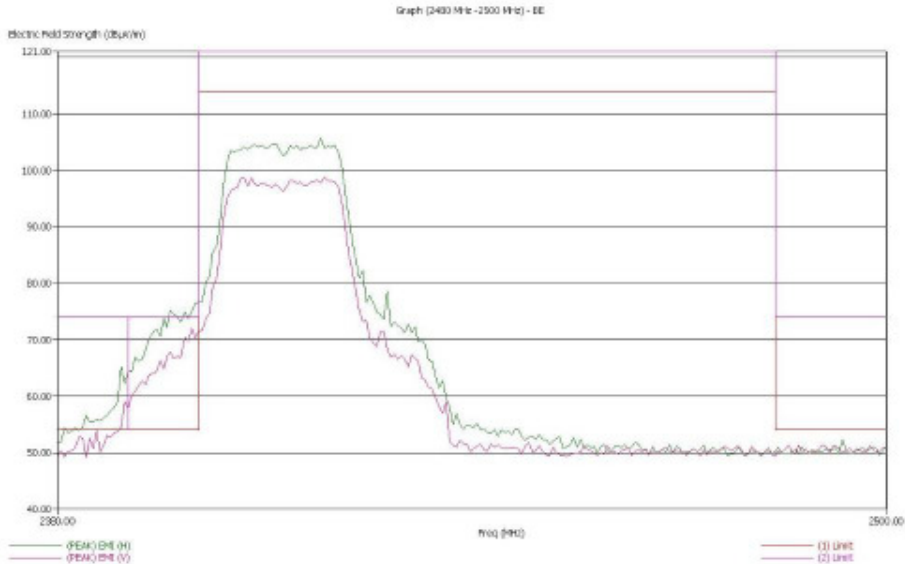
24-07-2006 11:01:53
Sequence: Preliminary Scan.



Low Band Edge X-Orientation (See Appendix 1)

Title: FCC 15.249
File: Anixia 21897-2 (5.11)(E22) FCC15.249 WLAN 2400(g) Tck-low_Y 2006-07-24 -3 -22.5deg_ant.
Operator: AIR_MAL_EHC_TL1_svf001
EUT Type: Axboko, FCC ID: IHDT56JV1, IMEI: 353977320100578
EUT Condition: Board Rev: P2
Comments: FCC 15.249(a) IEEE 802.11(g) WLAN emission in TCH mode
WLAN ch-1 (2412 MHz) TX mode @ 30Mbps/15dBm, Or.<Y
RFP 3103C antenna (30MHz - 3 GHz), Peak detector used,
Receiver attenuation 1st, -10dB from 10Hz to 30Hz.

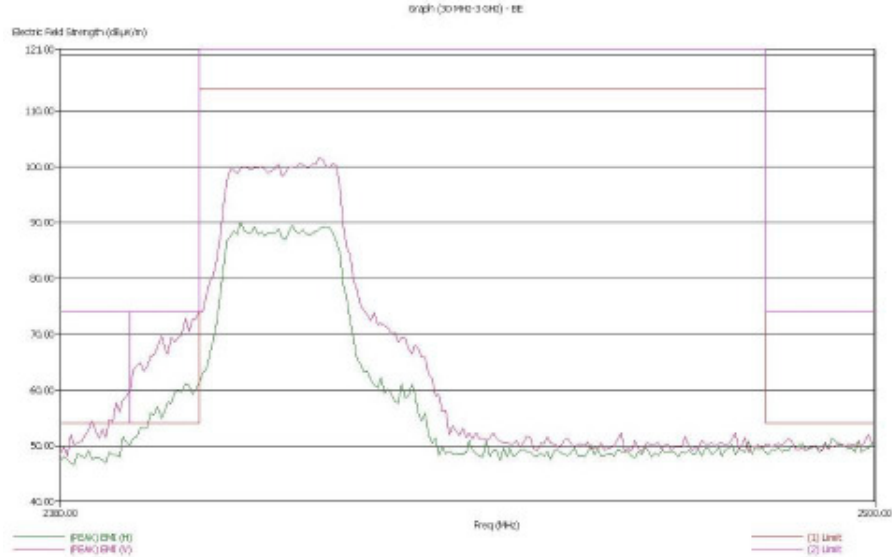
24-07-2006 10:52:35
Sequence: Preliminary Scan.



Low Band Edge Y-Orientation (See Appendix 1)

Title: FCC 15.249
File: Ashoka 21897-2 (5.31)(ESU) FCC15.249 WLAN 2400(g) Tch-low_Z 2008-07-24 -3.net
Operator: ASH_ASH_EMC_TL1, upv001
EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 35397702000578
EUT Condition: Board Rev: P2
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode
WLAN ch-1 (2412 MHz) TX mode @ 30Mbps/15dBm, Cr.+Z
IEP 3012C antenna (30MHz - 3 GHz), Peak detector used.
Receiver attenuation int. -10dB from 10Hz to 30Hz.

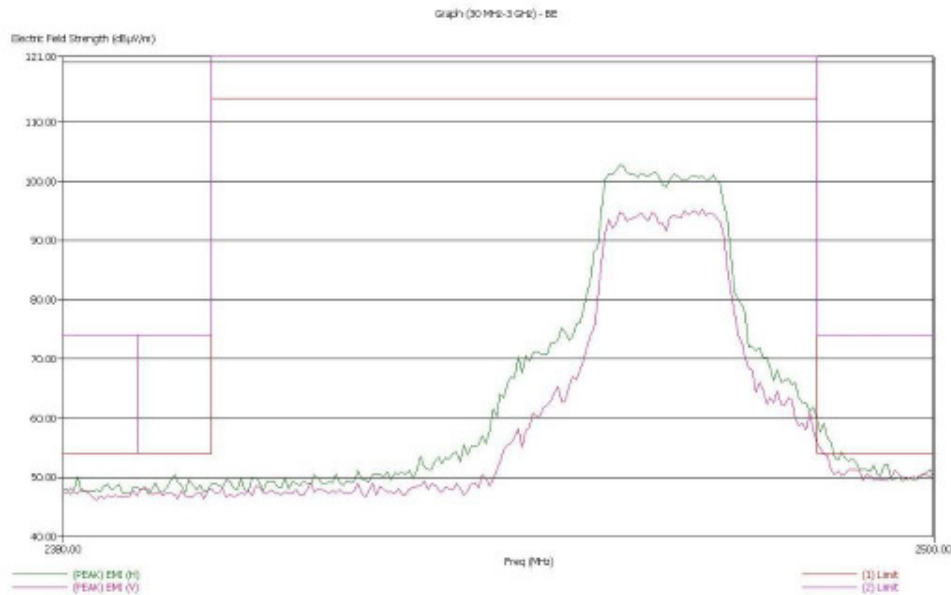
28-07-2008 11:48:39
Sequence: Preliminary Scan



Low Band Edge Z-Orientation

Title: FCC 15.249
File: Ashoka 21897-2 (5.31)(ESU) FCC15.249 WLAN 2400(g) Tch-hgh_X 2008-07-24 -3.net
Operator: ASH_ASH_EMC_TL1, upv001
EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 35397702000578
EUT Condition: Board Rev: P2
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode
WLAN ch-11 (2462 MHz) TX mode @ 30Mbps/15dBm, Cr.+X
IEP 3012C antenna (30MHz - 3 GHz), Peak detector used.
Receiver attenuation int. -10dB from 10Hz to 30Hz.

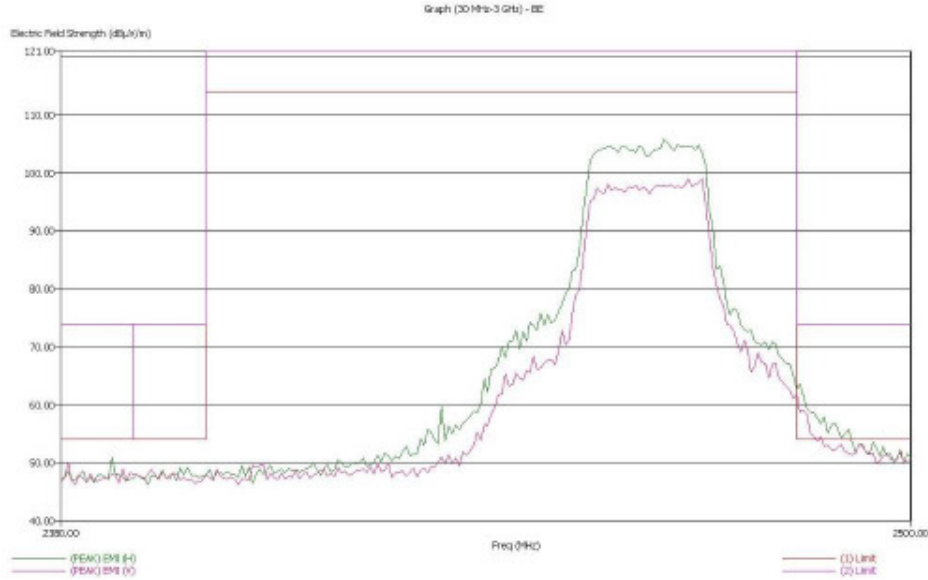
28-07-2008 12:25:24
Sequence: Preliminary Scan



High Band Edge X-Orientation

Title: FCC 15.249
File: Ashoka 21897-2 (5.31)[ESU] FCC15.249 WLAN 2400(g) Tcb-hgh_Y 2008-07-24 -3.sec
Operator: ADR_AAL_EMC_TLI. sev001
EUT Type: Ashoka, FCC ID: IHDT56JV1, DNI: 353977020000578
EUT Condition: Board Rev: P2
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode
WLAN ch-11 (2462 MHz) TX mode @ 30Mbps/15dBm, Cr=2
MLP 3023C antenna (30MHz - 3 GHz), Peak detector used.
Receiver attenuation int. -104dB from 1GHz to 3GHz.

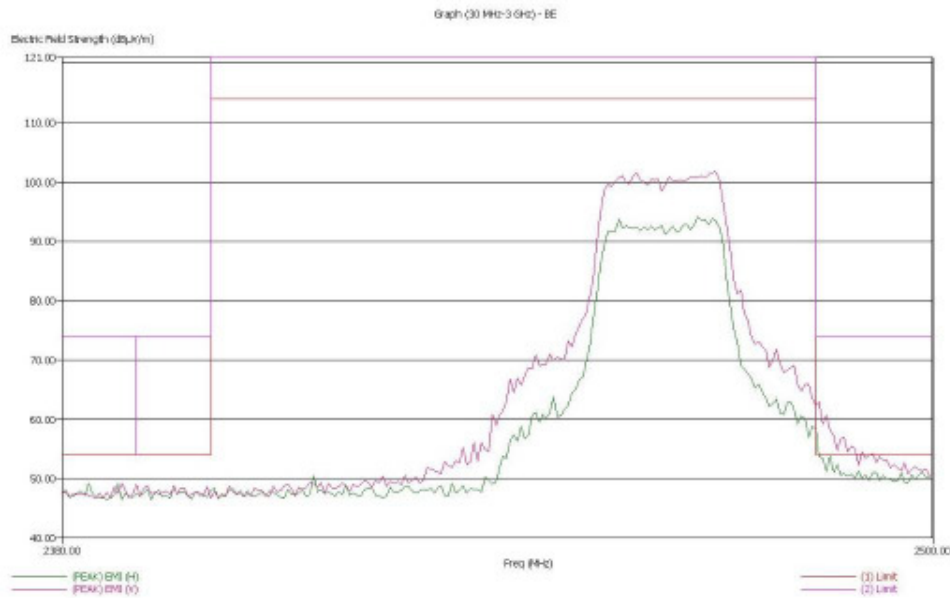
24-07-2008 12:13:48
Sequence: Preliminary Scan



High Band Edge Y-Orientation

Title: FCC 15.249
File: Ashoka 21897-2 (5.31)[ESU] FCC15.249 WLAN 2400(g) Tcb-hgh_Z 2008-07-24 -3.sec
Operator: ADR_AAL_EMC_TLI. sev001
EUT Type: Ashoka, FCC ID: IHDT56JV1, DNI: 353977020000578
EUT Condition: Board Rev: P2
Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode
WLAN ch-11 (2462 MHz) TX mode @ 30Mbps/15dBm, Cr=2
MLP 3023C antenna (30MHz - 3 GHz), Peak detector used.
Receiver attenuation int. -104dB from 1GHz to 3GHz.

24-07-2008 11:56:49
Sequence: Preliminary Scan



High Band Edge Z-Orientation

PICTURES

The pictures related to the above test results are placed in the associated report denoted as EXHIBIT 7A2.

APPENDIX

Appendix- 1 Out of band emission – band edge

The WLAN band (g) low channel band edge performance is further evaluated using the described method in FCC part 15.247(d).

The carrier is measured using a 100 kHz RBW (6 dB).

WLAN band (g):

Title: FCC 15.249
 File: Ashoka 21897-2 (5.31) (ESU) FCC15.249 WLAN 2400(g) Tch-low_X 2008-07-24 -PK Carrier RBW=100KHz VBW=Auto -H.setSequence: Final Measurements
 Operator: ADDR_AAL EMC_TL1.usv001
 EUT Type: Ashoka, FCC ID: IHDT56JV1. IMEI: 353977020000578
 EUT Condition: Board Rev: P2
 Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode
 WLAN ch-1 (2412 MHz) TX mode @ 36Mbps/15dBm. Or.-X
 EMCO 3115 antenna (30Hz - 18GHz). Peak detector used, RBW=100KHz, VBW=Auto

24-07-2008 12:45:53

Table

Freq (MHz)	Freq (Max) (MHz)	(PEAK) EMI (dBµV/m)	(2) Limit (dBµV/m)	(PEAK) Margin Lim2 (dB)	Tilt Agl (deg)	Pol
2405.00	2405.74	96.58	134.00	-37.42	7.60	H
2406.00	2405.74	96.56	134.00	-37.44	13.90	H
2407.00	2407.00	96.32	134.00	-37.68	8.90	H
2408.00	2406.99	96.27	134.00	-37.73	13.40	H
2409.00	2408.25	94.69	134.00	-39.31	11.90	H
2410.00	2410.74	95.61	134.00	-38.39	6.20	H
2411.00	2410.74	95.61	134.00	-38.39	7.50	H
2412.00	2410.81	94.50	134.00	-39.50	11.80	H
2413.00	2413.27	95.34	134.00	-38.66	6.60	H
2414.00	2414.49	96.05	134.00	-37.95	9.30	H
2415.00	2414.49	95.98	134.00	-38.02	10.30	H
2416.00	2416.99	96.10	134.00	-37.90	8.90	H
2417.00	2417.00	95.95	134.00	-38.05	6.50	H
2418.00	2417.00	96.02	134.00	-37.98	13.50	H
2419.00	2419.49	95.79	134.00	-38.21	10.30	H

Carrier Low Channel X-Orientation-RBW = 100 kHz (6 dB)

The peak value of the carrier field strength is measured to: 96.58 dBµV/m

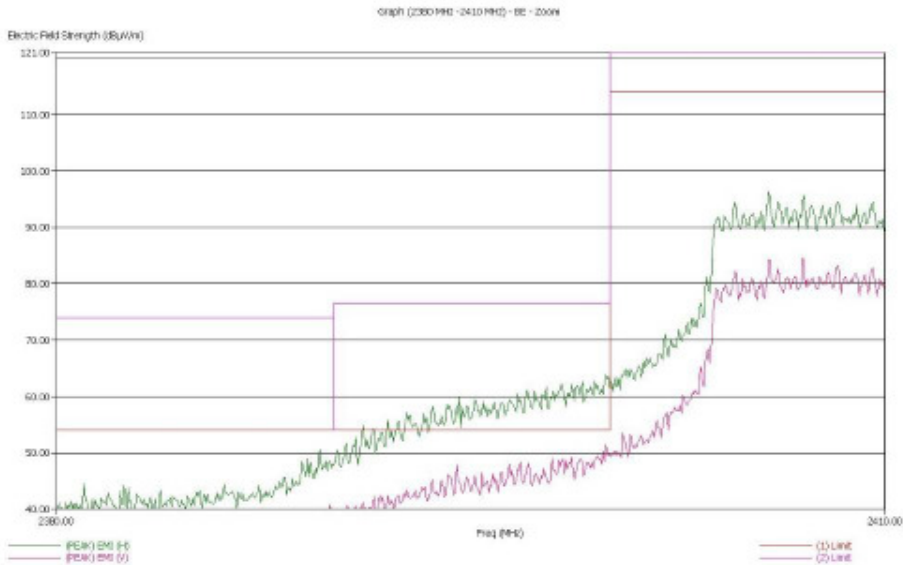
The new out of band emission limit line for emissions that does not fall inside any restricted band as defined in FCC part 15.205 and is limited to the frequency band 2390 MHz to 2400 MHz is:

96.58 dBµV/m – 20dB = 76.58 dBµV/m.

A test with this modified limit line included is performed.

```

Title: FCC 15.249
File: Awoko 21897-2 (5.31)(ESU) FCC15.249 WLAN 2400(g) Tab-low_X 2008-07-24 -3 -22.5deg -100kHz -50mS -Step508.net Sequence: Preliminary Beta
Operator: ADI_JAL_ENC_TL1_suv001
EUT Type: Awoko, FCC ID: IHDT56JV1, DMEI: 36197702000678
EUT Condition: Serial Num: P2
Comment: FCC 15.249-3 IEEE 802.11(g) WLAN emission in TCM mode
WLAN ch-1 (2412 MHz) TX mode @ 36Mbps/154dbm, 0r, <K
HLP 2002C antenna (30MHz - 3 GHz), Peak detector used.
Receiver attenuation 16T, -10dB from 10Hz to 30Hz.
    
```



Band Edge Low Channel X-Orientation-RBW = 100 kHz (6 dB)

The band edge performance in the out of band emission frequency range from 2390 MHz to 2400 MHz is attenuated by more than 20 dB with respect to the carrier.

Appendix- 2 Out of band emission – 4.th Harmonic

The 4.th harmonic for WiFi band (b/g) is allocated outside the restricted bands defined in FCC 15.205.

WLAN band (b)

The WLAN band (b) high channel band edge performance is further evaluated using the described method in FCC part 15.247(d).

The carrier is measured using a 100 kHz RBW (6 dB).

Title: FCC 15.249
 File: Ashoka 21897-2 (5.31)(ESIB) FCC15.249 WLAN 2400(b) Tch-hgh_Y 2008-07-24 -PK Carrier RBW=100KHz.set
 Operator: ADDR_AAL EMC_TL1, usv001
 EUT Type: Ashoka, FCC ID: IHDT56JV1, IMEI: 353977020000578
 EUT Condition: Board Rev: P2
 Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode
 WLAN ch-11 (2462 MHz) TX mode @ 11Mbps/15dBm. Or.+Y
 EMCO 3115 antenna (3GHz - 18GHz). Peak detector used, RBW=100KHz

28-07-2008 11:35:04
 Sequence: Final Measurements

Table

Freq (MHz)	Freq (Max) (MHz)	(PEAK) EMI (dBµV/m)	(2) Limit (dBµV/m)	(PEAK) Margin Lim2 (dB)	Ttbl Agl (deg)	Pol
2462.00	2461.77	100.37	134.00	-33.63	154.40	H
2462.00	2461.77	92.94	134.00	-41.06	77.50	V

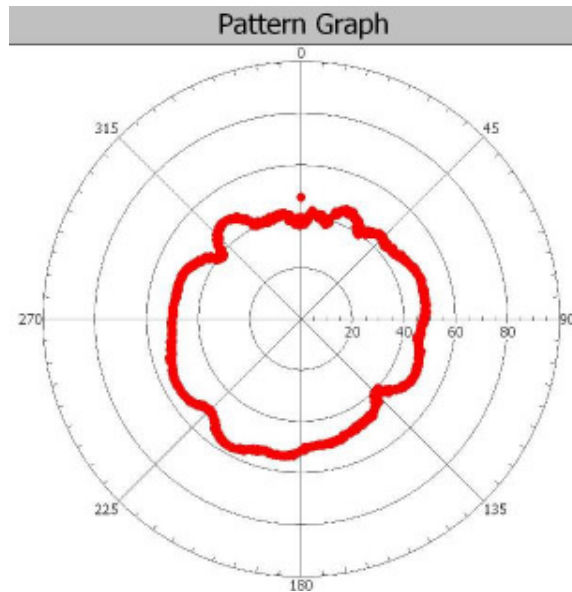
Carrier High channel Y-Orientation-RBW = 100 kHz (6 dB)

The peak value of the carrier field strength is measured to: 100.37 dBµV/m

The new out of band emission limit line for emissions that does not fall inside any restricted band as defined in FCC part 15.205 and is limited to the frequency band 2390 MHz to 2400 MHz is:

100.37 dBµV/m – 20dB = 80.37 dBµV/m.

Testing the 4.th harmonic with respect to FCC 15-247(d) for 20 dB attenuation below the carrier gave the following results:



Title: FCC 15.249
 File: Ashoka 21897-2 (5.31) (ESU) FCC15.249 WLAN 2400(b) Tch-hgh_Y 2008-07-24 -3-18 -PK 100kHz.set
 Operator: ADR_AAL EMC_TL1, usv001
 EUT Type: Ashoka, FCC ID: IHDT56JV1. IMEI: 353977020000578
 EUT Condition: Board Rev: P2
 Comments: FCC 15.249/ IEEE 802.11(b) WLAN emission in TCH mode
 WLAN ch-11 (2462 MHz) TX mode @ 11Mbps/15dBm. Or.-Y
 EMC0 3115 antenna (30Hz - 18GHz). PK detector.

28-07-2008 11:28:55
 Sequence: Final Measurements

Table						
Freq (MHz)	Freq (Max) (MHz)	(PEAK) EMI (dBµV/m)	Limit (dBµV/m)	(PEAK) Margin (dB)	Tilt Agl (deg)	Pol
9848.00	9848.02	56.39	80.30	-23.91	208.40	H

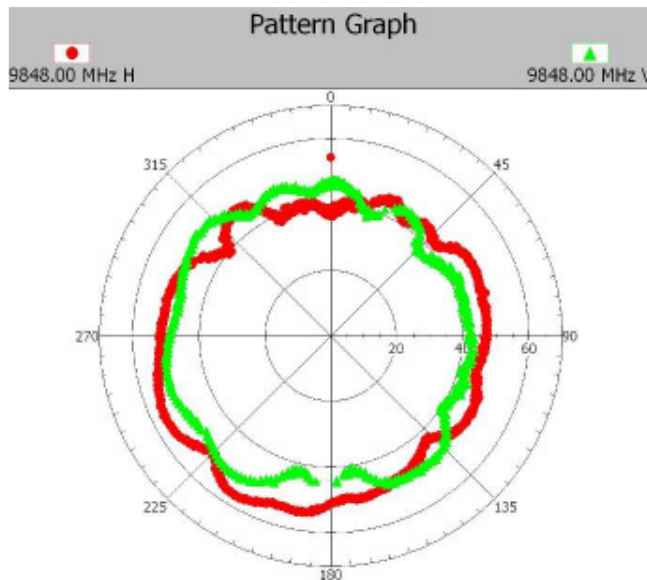
4.th Harmonic High channel Y-Orientation-RBW = 100 kHz (6 dB)

The 4.th harmonic in the WLAN band (b) out of band emission frequency range from 9500 MHz to 10600 MHz is attenuated by more than 20 dB with respect to the carrier.

WLAN band (g)

The modified limit line found in appendix 1 was applied in the frequency range from 9.5 GHz to 10.6 GHz.

Testing the 4.th harmonic with respect to FCC 15-247(d) for 20 dB attenuation below the carrier gave the following results:



Title: FCC 15.249
 File: Ashoka 21897-2 (5.31) (ESU) FCC15.249 WLAN 2400(g) Tch-hgh_Y 2008-07-24 -3-18 -PK -4har -RBW100K.set
 Operator: ADR_AAL EMC_TL1, usv001
 EUT Type: Ashoka, FCC ID: IHDT56JV1. IMEI: 353977020000578
 EUT Condition: Board Rev: P2
 Comments: FCC 15.249/ IEEE 802.11(g) WLAN emission in TCH mode
 WLAN ch-11 (2462 MHz) TX mode @ 36Mbps/15dBm. Or.+Y
 EMCO 3115 antenna (3GHz - 18GHz). Peak detector used.

25-07-2008 11:48:41
 Sequence: Final Measurements

Table

Freq (MHz)	Freq (Max) (MHz)	(PEAK) EMI (dBμV/m)	(2) Limit (dBμV/m)	(PEAK) Margin Lim2 (dB)	Tilt Agl (deg)	Pol
9648.00	9648.00	56.93	76.58	-19.65	210.90	H
9648.00	9648.00	51.76	76.58	-24.82	212.60	V

4.th Harmonic High channel Y-Orientation-RBW = 100 kHz (6 dB)

The 4.th harmonic in the WLAN band (g) out of band emission frequency range from 9500 MHz to 10600 MHz is attenuated by more than 20 dB with respect to the carrier.

End of Test Report