



August 19, 2008

Supplement to EMC test report (Exhibit 6A2) for Motorola portable cellular phone (FCC ID: IHDT56JV1)

Reference:

Correspondence Reference Number: IHD806646

Confirmation Number: 807250664-66

Prepared by:

Per K. Nielsen

Motorola Mobile Devices Product Safety and Compliance Laboratories

Aalborg – Denmark



Noise floor

Additional information for listed question number 4:

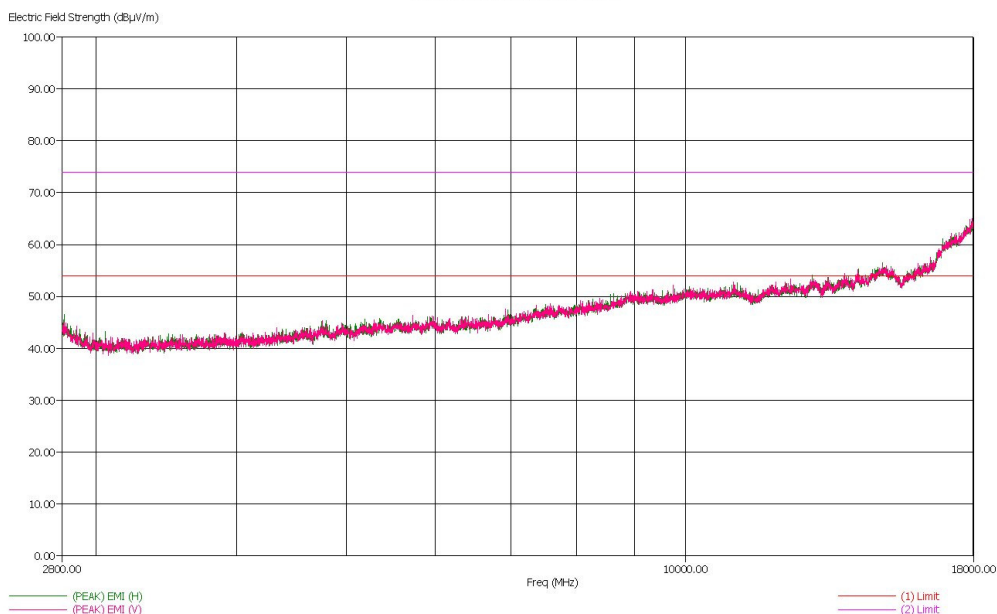
- In the Bluetooth radiated emission test report, the noise floor on a number of plots (in the vicinity of 18 GHz, a restricted band) is higher than the average limit. How was compliance determined in these areas?

Taken from another test report (EMCO 3115 S/N – 5896 (old design) used)

```
Title: FCC 15.247(c)
File: Ashoka 22022 (S_31)(ESU) FCC15.247 BT2400 Tch-low_Y 2008-05-27 -3-18.set
Operator: ADR_AAL_EMC_TLI_hkr001
EUT Type: Ashoka (non-WIFI), FCC ID: IHDT56JV2.
EUT Condition: IMEI: 353976020002618, Board Rev: P2.0
Comments: FCC 15.247(c)(1) Bluetooth (BT) emission in TCH mode.
BT channel 0 (2402 MHz) up/do in test mode. Orientation Y=H
EMCO 3115 antenna (3GHz - 18GHz).
```

27-05-2008 11:10:35
Sequence: Preliminary Scan

Ashoka (non-WIFI) 22022 (2.8 GHz-18 GHz)



3-18 GHz Low Channel Dual Polarization Y

The detector used in our pre-scan tests is the peak detector.

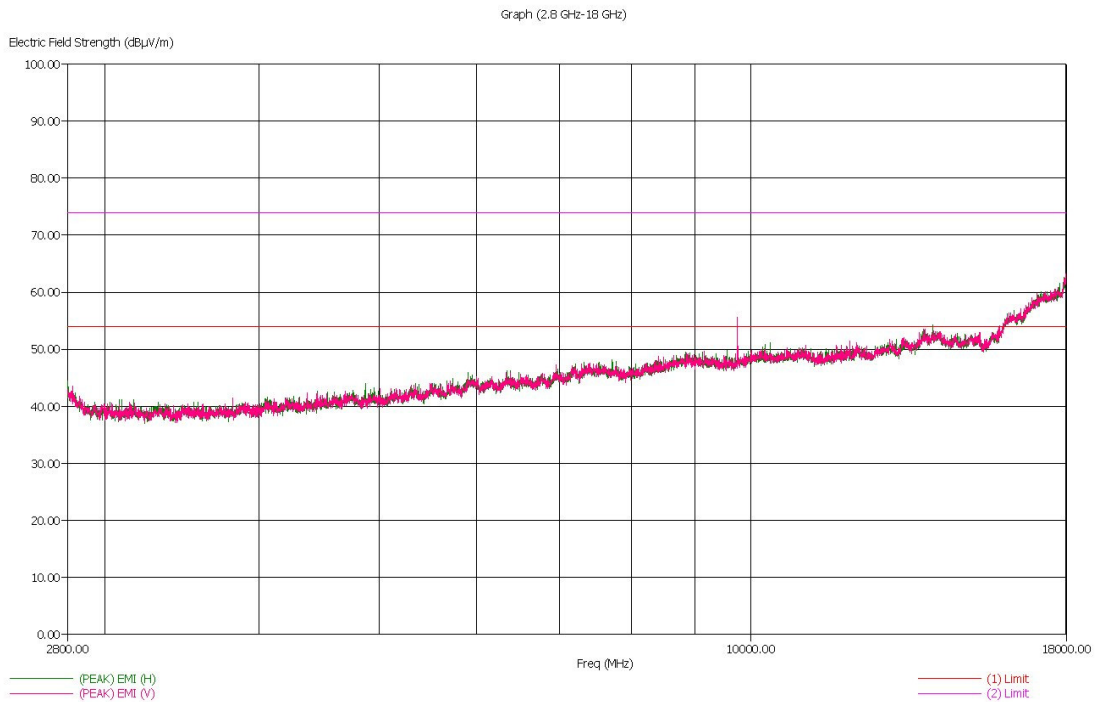
In the range form 3-18 GHz we cross the average limit line (54.0 dBµV/m) from approximately the 15 GHz to the 18 GHz range using the EMCO 3115 S/N 5896 antenna with a maximum of approximately 63.5 dBµV/m at 18 GHz.



Taken from the IHDT56JV1 test report (EMCO 3115 S/N – 71502 (new design) used)

Title: FCC 15.249
 File: Ashoka 21897-2 (5.31)(ESU) FCC15.249 WLAN 2400(b) Tch-mid_X 2008-07-24 -3-18.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-6 (2437 MHz) TX mode @ 11Mbps/15dBm. Or.-X
 EMCO 3115 antenna (3GHz - 18GHz). Peak detector used.

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



3-18 GHz Middle Channel Dual Polarization X

The EMCO 3115 S/N 71502 used for the IHDT56JV1 product cross of the average limit line in the 16.5 GHz to 18 GHz range with a maximum of approximately 60.5 dBµV/m. The EMCO 3115 S/N 71502 improves the noise floor with approximately 3 dB compared with our spare antenna.

As we do not cross the peak detector limit line applied as per FCC part 15.35(b) shown at 74 dBµV/m, we still have margin to detect any emissions that may occur in the particular ranges. This can be seen from our chamber validation when we apply a signal generator as EUT in the chamber.

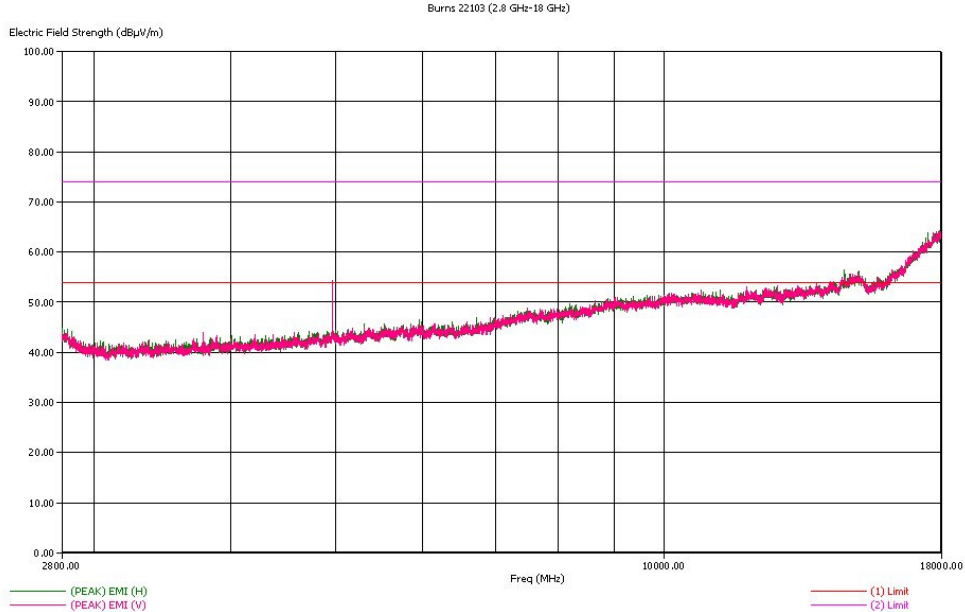
Obtained from other products we have the following graph:



Taken from another test report (EMCO 3115 S/N – 5896 used)

Title: FCC 15.247(c)
 File: Burns 22103 (5.31)(ESIB) FCC15.247 BT2400 Tch-hgh_Z 2008-06-26 - 3-18.set
 Operator: ADR AAL EMC TL1.usv001
 EUT Type: Burns, FCC ID: IHDP56JP1, ESN: 02DB627B
 EUT Condition: Board Rev: P2, Closed
 Comments: FCC 15.247(c)(1) Bluetooth (BT) emission in TCH mode.
 BT ch. 78 (2480 MHz) up/do in test mode. Orientation Z=H/V
 EMCO 3115 antenna (3GHz - 18GHz). Peak detector used.

27-06-2008 10:48:05
 Sequence: Preliminary Scan



Title: FCC 15.247(c)
 File: Burns 22103 (5.31)(ESIB) FCC15.247 BT2400 Tch-hgh_Z 2008-06-26 - 3-18 -AV.set
 Operator: ADR AAL EMC TL1.usv001
 EUT Type: Burns, FCC ID: IHDP56JP1, ESN: 02DB627B
 EUT Condition: Board Rev: P2, Closed
 Comments: FCC 15.247(c)(1) Bluetooth (BT) emission in TCH mode.
 BT ch. 78 (2480 MHz) up/do in test mode. Orientation Z=H/V
 EMCO 3115 antenna (3GHz - 18GHz). AV detector used.

27-06-2008 11:05:11
 Sequence: Final Measurements

Burns 22103, hgh-Z - Table

Freq (MHz)	Freq (Max) (MHz)	(AVG) EMI (dBµV/m)	(1) Limit (dBµV/m)	(AVG) Margin Lim1 (dB)	Ttbl Agl (deg)	Pol
4960.00	4960.11	43.22	54.00	-10.78	211.70	H
4960.00	4959.99	42.09	54.00	-11.91	360.00	V
18000.00	17998.50	51.71	54.00	-2.29	358.30	H

3-18 GHz High Channel Dual Polarization Z
 (EMCO 3115 S/N-5896)

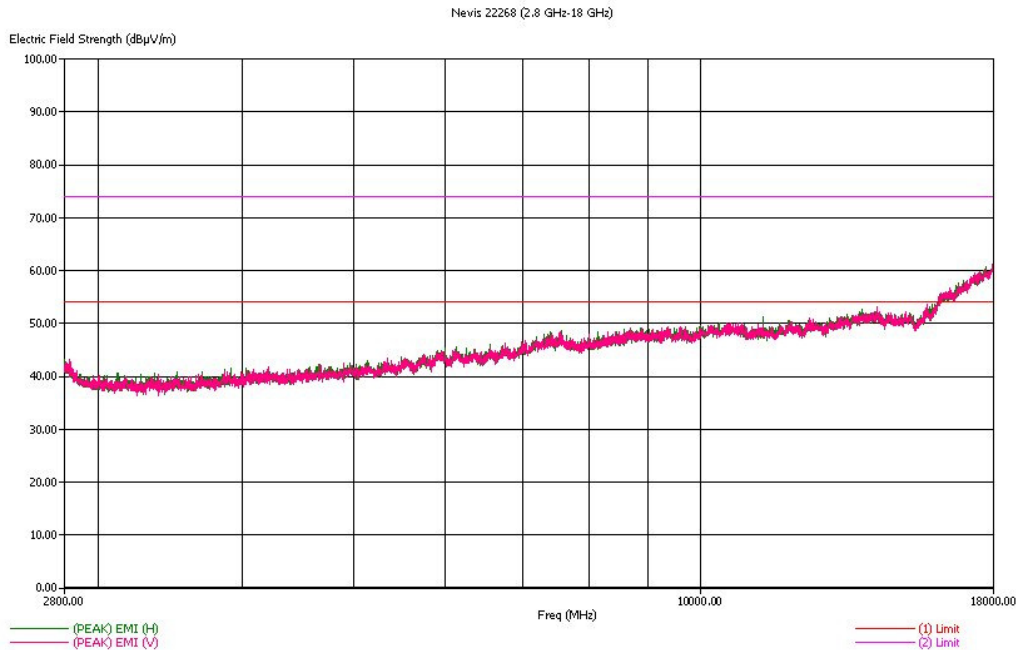
The test above in the range from 3-18 GHz (**Worst case horn antenna EMCO 3115 S/N 5896**) shows that for a final measurement using the average detector we still have 2.29 dB margins to the average limit line at 18 GHz.



Taken from another test report (EMCO 3115 S/N – 71502 used)

Title: FCC 15.247(c)
 File: Nevis 22268 (5.31)(ESIB) FCC15.247 BT2400 Tch-hgh_Z 2008-08-11 -3-18.set
 Operator: ADR AAL EMC TL1 usv001
 EUT Type: Nevis, FCC ID: IHDP56JY1, IMEI: 004401037753148
 EUT Condition: Board Rev: P3, closed
 Comments: FCC 15.247(c)(1) Bluetooth (BT) emission in TCH mode.
 BT ch: 78 (2480 MHz) up/do in test mode, Orientation Z=V
 EMCO 3115 antenna (3GHz - 18GHz). Peak detector used.

12-08-2008 10:49:32
 Sequence: Preliminary Scan



Title: FCC 15.247(c)
 File: Nevis 22268 (5.31)(ESIB) FCC15.247 BT2400 Tch-low_Z 2008-08-11 -17.975GHz -AV.set
 Operator: ADR AAL EMC TL1 usv001
 EUT Type: Nevis, FCC ID: IHDP56JY1, IMEI: 004401037753148
 EUT Condition: Board Rev: P3, closed
 Comments: FCC 15.247(c)(1) Bluetooth (BT) emission in TCH mode.
 BT ch: 0 (2402 MHz) up/do in test mode, Orientation Z=V
 EMCO 3115 antenna (3GHz - 18GHz). AV detector used.

12-08-2008 11:39:13
 Sequence: Final Measurements

Nevis 22268, low_Z - Table

Freq (MHz)	Freq (Max) (MHz)	(AVG) EMI (dBuV/m)	(1) Limit (dBuV/m)	(AVG) Margin Lim1 (dB)	Ttbl Agl (deg)	Pol
17975.00	17970.19	49.02	54.00	-4.98	301.80	H
17975.00	17967.71	48.95	54.00	-5.05	217.10	V

3-18 GHz High Channel Dual Polarization Z (EMCO 3115 S/N-71502)

The test above in the range from 3-18 GHz (**Best case horn antenna EMCO 3115 S/N 71502**) shows that for a final measurement using the average detector we still have 4.98 dB margins to the average limit line at 18 GHz.

**Conclusion:**

Even though the noise floor looks high in certain frequency ranges the level is measured using peak detector giving satisfied margin to the average emission requirement specified in FCC part 15.209.

We monitor the performance on a regular basis and we also execute update programs to improve performance for our measurements:

- A new high pass filter with higher attenuation at the 2.5 GHz together with a new low noise amplifier with 7-8 dB higher gain is under preparation for the EMCO 3115 horn antennas.
- Extended calibration range for the EMCO 3116 horn antenna. The antenna is currently used from 18 GHz to 40 GHz but will be extended to cover 16.5 GHz to 40 GHz.

In the range from 3 GHz to 18 GHz we have used our spare antenna (EMCO 3115 S/N 5896) in a period as our preferred antenna (EMCO 3115 S/N 71502) were out for the yearly calibration cycle. The noise floor measured with the EMCO 3115 S/N 5896 antenna is approximately 3dB worse than measured with the preferred antenna, however still valid for FCC testing according to the limits specified in FCC part 15.209.

As the product with FCC ID IHDT56JV1 has been measured with the EMCO 3115 S/N 71502 so the margins to the average limit line has been improved by 3 dB over previous tests during the calibration cycle.