

## **PLOTS OF EMISSIONS**

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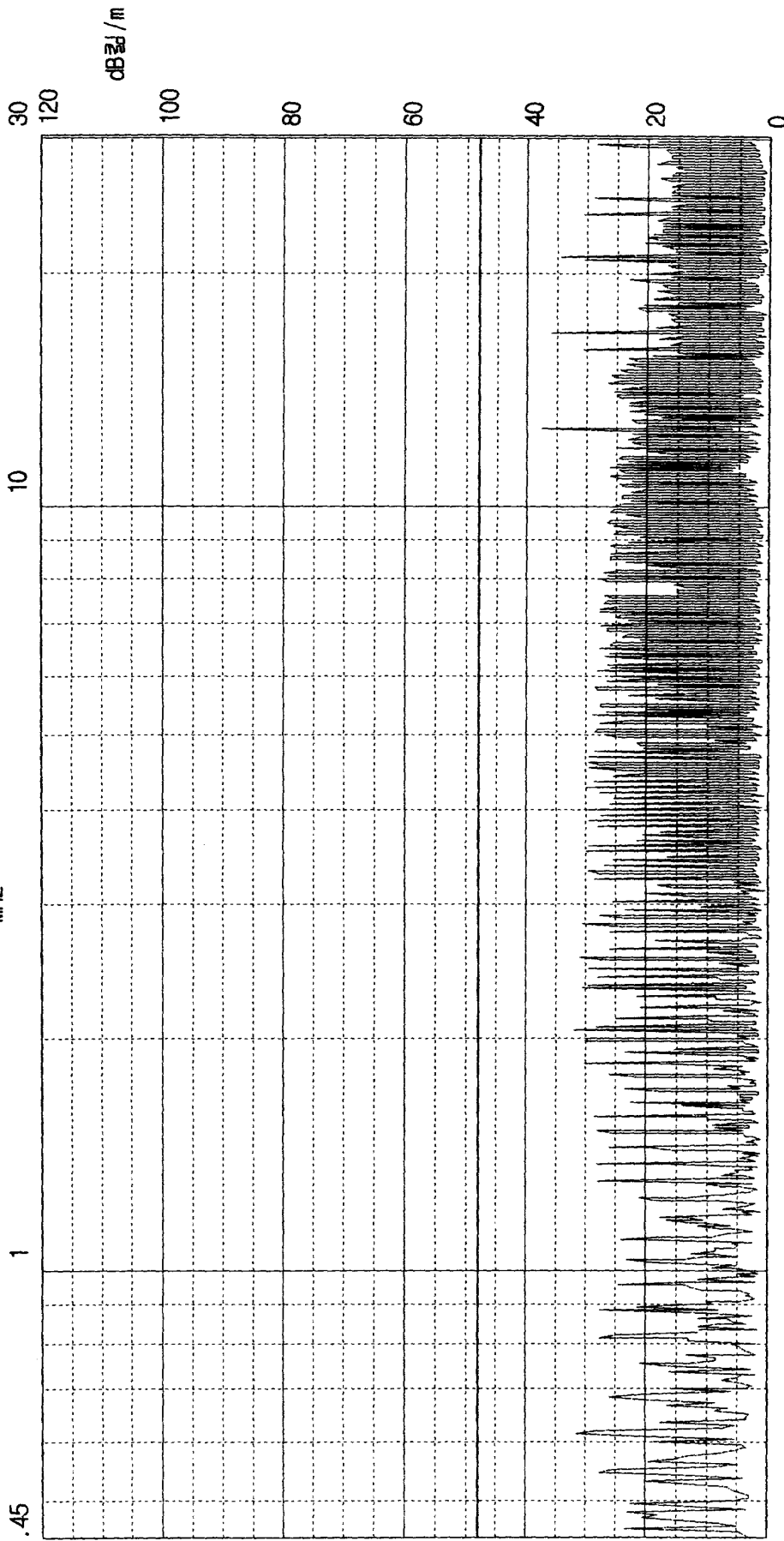
P M M 8 0 1 0 for Windows

Name:

Date: 01-06-18

Time: 17:40

MHz



Limit : Fcc\_15\_b Detector: Peak Lissn L3-25 Line: 1

MODEL: JULI II (UP-323)

LINE: HOT

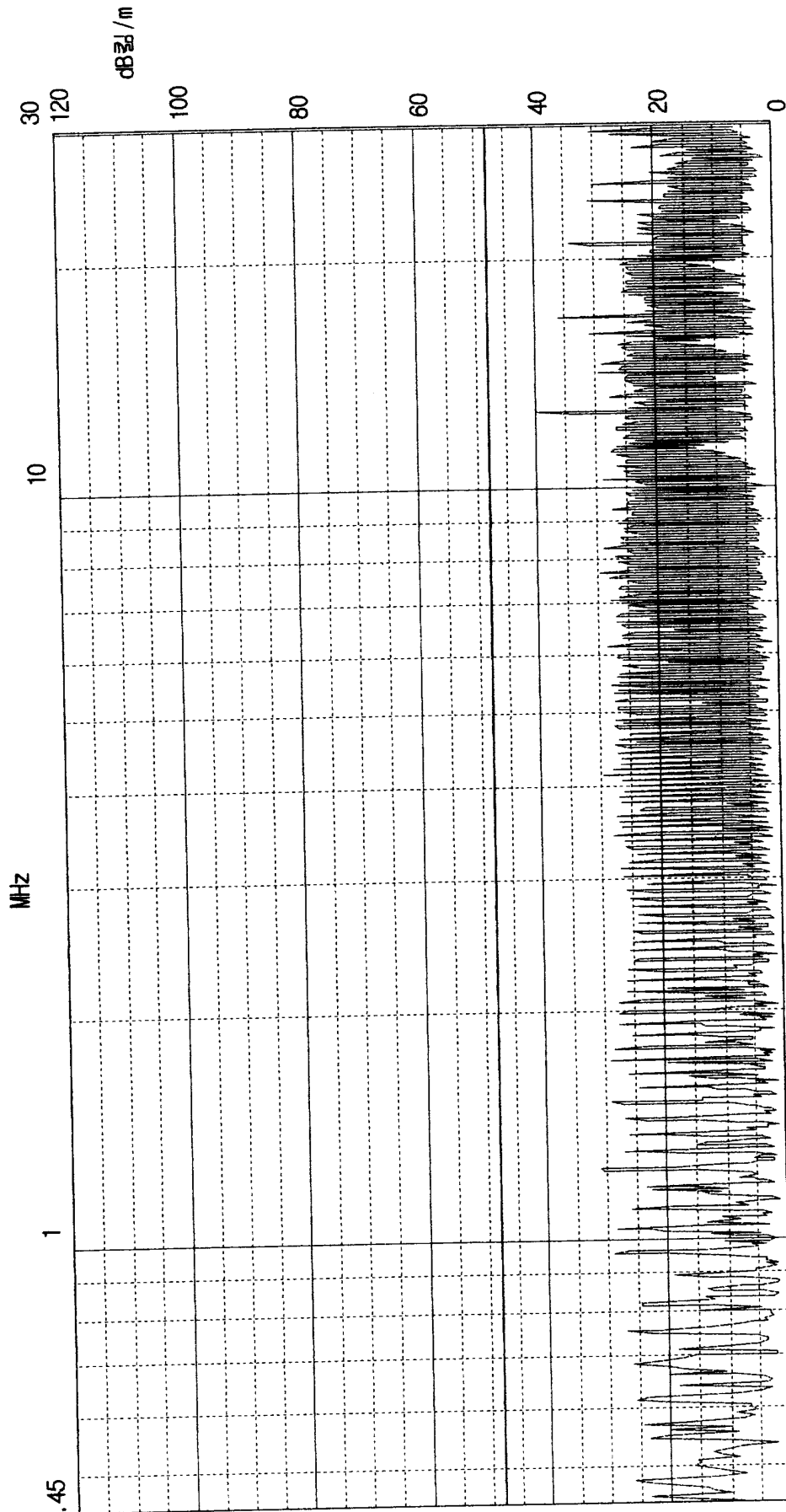
OPERATOR: E. J. Cho *EJ Cho*

Time: 17:47

Date: 01-06-18

Name:

P M M 8 0 1 0 for Windows



Limit : Fcc\_15\_b

Detector: Peak

Lisn L3-25

Line: 1

MODEL: JULI II (UP-323)

LINE: NEUTRAL

OPERATOR: E. J. Chong

## SAMPLE CALCULATIONS

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$$\text{dB } \mu V = 20 \log_{10} (\mu V/m)$$

$$\mu V = 10^{(\text{dB } \mu V/20)}$$

### EX. 1.

@20.3 MHz

Class B limit = 250  $\mu V$  = 48.0 dB  $\mu V$

Reading = 40.8 dB  $\mu V$  (calibrated level)

$$10^{(40.8/20)} = 109.64 \mu V$$

$$\text{Margin} = 48.0 - 40.8 = 7.2$$

7.2 dB below limit

### EX. 2.

@57.7 MHz

Class B limit = 100  $\mu V/m$  = 40.0 dB  $\mu V/m$

Reading = 19.1 dB  $\mu V$  (calibrated level)

Antenna factor + Cable Loss = 10.12 dB

Total = 29.22 dB  $\mu V/m$

$$\text{Margin} = 40.0 - 29.22 = 10.78$$

10.78 dB below the limit

## ACCURACY OF MEASUREMENT

The Measurement Uncertainties stated were calculated in accordance with the requirements of NIST Technical Note 1297 with the confidence level of 95%

| Contribution                                      | Distribution  | Uncertainties |          |
|---------------------------------------------------|---------------|---------------|----------|
|                                                   |               | 3 m           | 10 m     |
| Field Strength Monitor                            | Gaussian (2s) | +/- 0.5       | +/- 0.5  |
| Field Strength Variation                          | Rectangular   | +/- 1.2       | +/- 1.5  |
| Random                                            | Gaussian (1s) | +/- 0.7       | +/- 0.7  |
| Total Uncertainty@95% min. confidence probability |               | +/- 1.91      | +/- 2.11 |

Measurement Uncertainty Calculations:

$$U = 2 \sqrt{S^2_{s1} + S^2_{s2} + \dots + S^2_{sr}}$$

**TEST EQUIPMENT**

| <b>Name of Equipment</b>                      | <b>Manufactory</b>       | <b>Model</b>  | <b>Cal. Date</b> |
|-----------------------------------------------|--------------------------|---------------|------------------|
| Test Receiver                                 | R/S                      | ESPC          | Oct. 2000        |
| Test Receiver                                 | PMM                      | 8010          | Sep. 2000        |
| Test Receiver                                 | PMM                      | 8030          | Sep. 2000        |
| Spectrum Analyzer                             | Hewlett Packard          | E4411A        | Dec. 2000        |
| Spectrum Analyzer                             | Hewlett Packard          | HP8563E       | Oct. 2000        |
| Spectrum Analyzer                             | Hewlett Packard          | HP-8568B      | Oct. 2000        |
| Spectrum Analyzer                             | Hewlett Packard          | HP-8561B      | Oct. 2000        |
| Quasi Peak Adapter                            | Hewlett Packard          | HP-85605A     | Oct. 2000        |
| RF Preselector                                | Hewlett Packard          | HP-85685A     | Oct. 2000        |
| Signal Generator                              | R/S                      | SMG           | Jul. 2001        |
| Color Plotter                                 | Hewlett Packard          | HP-7475A      | Dec. 2000        |
| LISN                                          | PMM                      | L3-25         | Apr. 2001        |
| LISN                                          | PMM                      | L1-150        | Aug. 2000        |
| LISN                                          | EMCO                     | 3825/2        | Apr. 2001        |
| RF Amplifier                                  | Hewlett Packard          | 8447F/OPT H64 | Dec. 2000        |
| High Impedance Voltage Probe                  | PMM                      | SHC-1         | Aug. 2000        |
| Absorbing Clamp                               | EMV Mess-System          | ACF-01        | Jun. 2001        |
| Close E-Field Probe                           | Hewlett Packard          | HP11940A      | Dec. 2000        |
| Close H-Field probe                           | Hewlett Packard          | HP11941A      | Jan. 2001        |
| HP9000 Model 300 Controller                   | Hewlett Packard          | HP-9000/300   | Dec. 2000        |
| Loop Antenna                                  | Electro-Mechanics        | EMCO-6502     | Oct. 2000        |
| Biconical Antenna                             | Electro-Mechanics        | EMCO-3110     | Apr. 2001        |
| Log Periodic Antenna                          | Electro-Mechanics        | EMCO-3146     | Oct. 2000        |
| Tuned Dipole Antenna                          | Electro-Mechanics        | EMCO-3121C    | Oct. 2000        |
| Horn Antenna                                  | SCHWARZBECK              | BBHA 9120D    | Oct. 2000        |
| Non-Metallic Tripod                           | Electro-Mechanics        | 0960-0744     | Dec. 2000        |
| Biconical Antenna                             | PMM                      | BIC01         | Oct. 2000        |
| Log Periodic Antenna                          | PMM                      | LP01          | Oct. 2000        |
| Non-Metallic Tripod                           | PMM                      | R-01          | Sep. 2000        |
| Antenna Master                                | Electro-Mechanics        | EMCO-1050     | Sep. 2000        |
| Turn Table                                    | Electro-Mechanics        | EMCO-1062     | Sep. 2000        |
| Turn Table                                    | Dail EMC                 | DIE-1500      | Dec. 2000        |
| Pulse Limiter                                 | PMM                      | PL-01         | Oct. 2000        |
| 50 OHM Three-Way SIG Distributer              | Meguro Electronics Corp. | R-Type        | Dec. 2000        |
| Portable Electromagnetic Field Strength Meter | PMM                      | PMM8051       | Aug. 2000        |
| E-Field Probe                                 | PMM                      | BA-01/03B/05  | Aug. 2000        |
| H-Field Probe                                 | PMM                      | BA-04/08      | Aug. 2000        |

## **RECOMMENDATION/CONCLUSION**

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The data collected shows that the **Unitech Electronics Co., Ltd.**

**Model : JULI II (UP-323)**

complies with § 15.107 and 15.109 of the FCC Rules. The highest emission observed was at 12.615MHz for conducted emissions with a margin of 9.5dB and at 192.48MHz for radiated emissions with a margin of 11.23dB.

## APPENDIX A – SAMPLE LABEL

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### New Labelling Requirements

The sample label shown shall be *permanently affixed* at a conspicuous location on the device and be readily visible to the user at the time of purchase.

|                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MP3 Player</b><br><b>Model : JULI II (UP-323)</b><br><b>Serial Number: N/A</b><br><b>Unitech Electronics Co., Ltd.</b>                                                                                                                                                                      |
| THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES.<br>OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:<br>(1)THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE AND<br>(2)THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED,<br>INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE<br>OPERATION. |
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## **APPENDIX B – CIRCUIT DIAGRAM**

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## **APPENDIX C – TEST PHOTOGRAPHS**

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The **Line-Conducted** and **Radiated** and **Antenna Power Conducted Test Picture** show the worst-case configuration and cable placement.