

Variant FCC Test Report

(PART 22)

Report No.: RF140312C09F-6

FCC ID: P4Q-N435

Test Model: N435

Received Date: Dec. 22, 2015

Test Date: Jan. 07, 2016

Issued Date: Feb. 16, 2016

Applicant: MiTAC International Corp.

Address: Building B, No. 209, Sec. 1, Nan Gang Rd., Nan Gang Dist., Taipei 11568, Taiwan, R.O.C.

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C)

Test Location (1): No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

Test Location (2): No.215, Sec. 3, Beixin Rd., Xindian Dist., New Taipei City 231, Taiwan, R.O.C



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Table of Contents

| | |
|---|-----------|
| Release Control Record | 3 |
| 1 Certificate of Conformity | 4 |
| 2 Summary of Test Results | 5 |
| 2.1 Measurement Uncertainty | 5 |
| 2.2 Test Site and Instruments | 6 |
| 3 General Information | 8 |
| 3.1 General Description of EUT | 8 |
| 3.2 Configuration of System under Test | 9 |
| 3.2.1 Description of Support Units | 9 |
| 3.3 Test Mode Applicability and Tested Channel Detail | 10 |
| 3.4 EUT Operating Conditions | 10 |
| 3.5 General Description of Applied Standards | 10 |
| 4 Test Types and Results | 11 |
| 4.1 Output Power Measurement | 11 |
| 4.1.1 Limits of Output Power Measurement | 11 |
| 4.1.2 Test Procedures | 11 |
| 4.1.3 Test Setup | 12 |
| 4.1.4 Test Results | 12 |
| 4.2 Radiated Emission Measurement | 13 |
| 4.2.1 Limits of Radiated Emission Measurement | 13 |
| 4.2.2 Test Procedure | 13 |
| 4.2.3 Deviation from Test Standard | 13 |
| 4.2.4 Test Setup | 14 |
| 4.2.5 Test Results | 15 |
| 5 Pictures of Test Arrangements | 17 |
| Appendix – Information on the Testing Laboratories | 18 |



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Release Control Record

| Issue No. | Description | Date Issued |
|----------------|------------------|---------------|
| RF140312C09F-6 | Original Release | Feb. 16, 2016 |



1 Certificate of Conformity

Product: Tablet PC
Brand: Mio ; Mitac ; Code ; Janam ; Stryker
Test Model: N435
Sample Status: Production Unit
Applicant: MiTAC International Corp.
Test Date: Jan. 07, 2016
Standards: FCC Part 22, Subpart H

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : Evonne Liu , **Date:** Feb. 16, 2016
Evonne Liu / Specialist

Approved by : Stanley Wu , **Date:** Feb. 16, 2016
Stanley Wu / Assistant Manager



2 Summary of Test Results

| Applied Standard: FCC Part 22 & Part 2 | | | |
|--|------------------------------|--------|--|
| FCC Clause | Test Item | Result | Remarks |
| 2.1046 22.913 (a) | Effective Radiated Power | Pass | Meet the requirement of limit. |
| --- | Peak to Average Ratio | Pass | Refer to Note |
| 2.1055 22.355 | Frequency Stability | Pass | Refer to Note |
| 2.1049 | Occupied Bandwidth | Pass | Refer to Note |
| 22.917 | Band Edge Measurements | Pass | Refer to Note |
| 2.1051 22.917 | Conducted Spurious Emissions | Pass | Refer to Note |
| 2.1053 22.917 | Radiated Spurious Emissions | Pass | Meet the requirement of limit. Minimum passing margin is -23.38 dB at 2509.20 MHz. |

Note: Only ERP and RSE tests were performed for this addendum. Refer to original report for other test data.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

| Measurement | Frequency | Expanded Uncertainty (k=2) (\pm) |
|--------------------------------|--------------------|--------------------------------------|
| Radiated Emissions up to 1 GHz | 30 MHz ~ 200 MHz | 2.93 dB |
| | 200 MHz ~ 1000 MHz | 2.95 dB |
| Radiated Emissions above 1 GHz | 1 GHz ~ 18 GHz | 2.26 dB |
| | 18 GHz ~ 40 GHz | 1.94 dB |



2.2 Test Site and Instruments

| Description & Manufacturer | Model No. | Serial No. | Date of Calibration | Due Date of Calibration |
|--|-----------------|---|---------------------|-------------------------|
| Test Receiver Agilent Technologies | N9038A | MY52260177 | May 19, 2015 | May 18, 2016 |
| Spectrum Analyzer ROHDE & SCHWARZ | FSU43 | 101261 | Dec. 17, 2015 | Dec. 16, 2016 |
| BILOG Antenna SCHWARZBECK | VULB9168 | 9168-472 | Feb. 04, 2015 | Feb. 03, 2016 |
| BILOG Antenna SCHWARZBECK | VULB 9168 | 9168-153 | Jan. 07, 2016 | Jan. 06, 2017 |
| HORN Antenna ETS-Lindgren | BBHA 9120 D | 9120D-969 | Feb. 09, 2015 | Feb. 08, 2016 |
| HORN Antenna SCHWARZBECK | BBHA 9170 | 9170-480 | Jan. 04, 2016 | Jan. 03, 2017 |
| Bluetooth Tester | CBT | 100980 | Apr. 27, 2015 | Apr. 26, 2017 |
| Loop Antenna | EM-6879 | 269 | Jul. 31, 2015 | Jul. 30, 2016 |
| Agilent Communications Tester-Wireless | 8960 Series 10 | MY53201073 | Jul. 03, 2015 | Jul. 02, 2017 |
| Preamplifier Agilent | 310N | 187226 | Jun. 29, 2015 | Jun. 28, 2016 |
| Preamplifier Agilent | 83017A | MY39501357 | Jun. 29, 2015 | Jun. 28, 2016 |
| Power Meter Anritsu | ML2495A | 1232002 | Sep. 21, 2015 | Sep. 20, 2016 |
| Power Sensor Anritsu | MA2411B | 1207325 | Sep. 21, 2015 | Sep. 20, 2016 |
| RF signal cable ETS-LINDGREN | 5D-FB | Cable-CH1-01(R FC-SMS-100-SM S-120+RFC-SMS -100-SMS-400) | Jun. 27, 2015 | Jun. 26, 2016 |
| RF signal cable ETS-LINDGREN | 8D-FB | Cable-CH1-02(R FC-SMS-100-SM S-24) | Jun. 27, 2015 | Jun. 26, 2016 |
| Software BV ADT | E3 8.130425b | NA | NA | NA |
| Antenna Tower MF | NA | NA | NA | NA |
| Turn Table MF | NA | NA | NA | NA |
| Antenna Tower & Turn Table Controller MF | MF-7802 | NA | NA | NA |
| Communications Tester-Wireless Agilent | 8960 Series 10 | MY53201073 | Jul. 03, 2015 | Jul. 02, 2017 |
| Radio Communication Analyzer Anritsu | MT8820C | 6201240432 | Jul. 06, 2015 | Jul. 05, 2017 |



- Note:
1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HsinTien Chamber 1.
 3. The horn antenna and preamplifier (model: 83017A) are used only for the measurement of emission frequency above 1 GHz if tested.
 4. The FCC Site Registration No. is 149147.
 5. The IC Site Registration No. is IC7450I-1.

3 General Information

3.1 General Description of EUT

| | | |
|----------------------------|---|-------------------|
| Product | Tablet PC | |
| Brand | Mio ; Mitac ; Code ; Janam ; Stryker | |
| Test Model | N435 | |
| Status of EUT | Production Unit | |
| Power Supply Rating | 5.0 Vdc (adapter) 3.7 Vdc (Li-ion battery) | |
| Modulation Type | GPRS | GMSK |
| | EDGE | GMSK, 8PSK |
| | WCDMA | BPSK |
| Frequency Range | GPRS/EDGE | 824.2 ~ 848.8 MHz |
| | WCDMA | 826.4 ~ 846.6 MHz |
| Max. ERP Power | 659.48 mW | |
| Antenna Type | Fixed Internal Antenna | |
| Accessory Device | Refer to Note as below | |
| Data Cable Supplied | Refer to Note as below | |

Note:

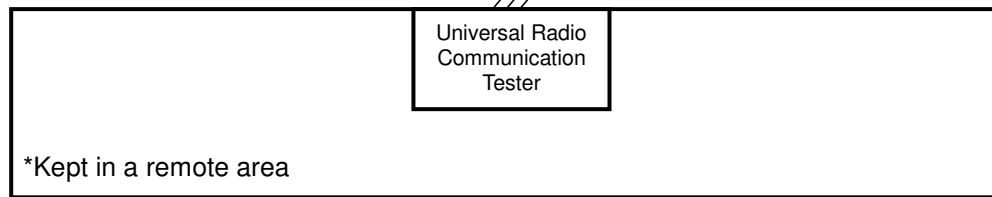
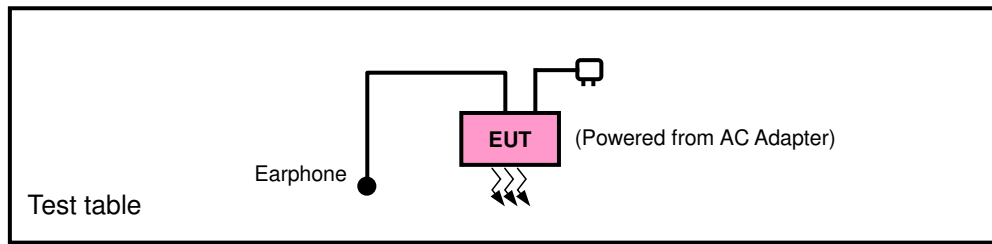
1. This report is issued as a supplementary report to BV ADT report no.: RF140312C09. The differences compared with original report are adding LCD Panel 2. Therefore, only ERP and RSE had been retest.
2. The EUT contains following accessory devices.

| Product | Brand | Model | Description |
|-----------------------------|--|-------------------------------|--|
| Adapter 1 | TPT | MII050200 | I/P: 100-240Vac, 50-60Hz, 0.3A O/P: 5Vdc, 2A |
| Adapter 2 | SINPRO | MPU16A-102 | I/P: 100-240Vac, 47-63Hz, 0.33-0.18A O/P: 5Vdc, 2.6A |
| Battery | Tian Yu | SJS3060 | 3.7Vdc, 3060mAh |
| BCR Scanner 1 (2D LED) | Honeywell | N5600, N56X3, N56X0, N5603 | -- |
| BCR Scanner 2 (2D) | Code | CR8012 | -- |
| BCR Scanner 3 (2D Laser) | Honeywell | N5603, N56X3 | -- |
| LCD Panel 1 | TIANME | TM059YDH01 | 5.88 inch |
| LCD Panel 2 | SHANGHAI TIANMA MICRO-ELECTRONI CS | TM057JDHP04 | 5.7 inch |
| Front Camera | LITE-ON | 10P2SA511 | -- |
| Rear Camera | LITE-ON | 10P2SF130 | -- |
| WWAN Module | Ublox | LISA-U200 | -- |
| WLAN, BT Module | Jorjin | WG7833-B0 & WX7833-B0 | -- |

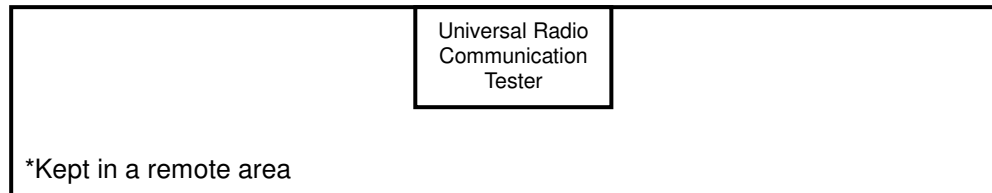
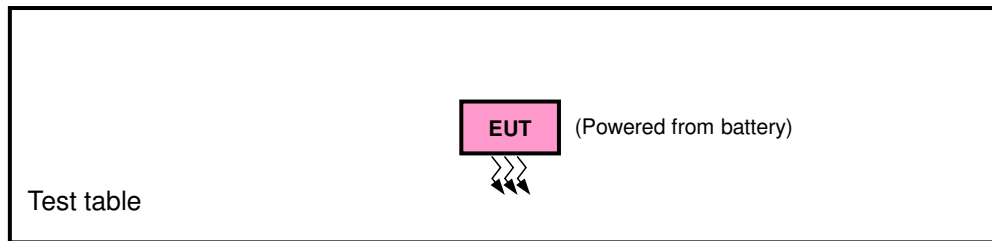
3. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Configuration of System under Test

<Radiated Emission Test>



<E.R.P. Test>



3.2.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| No. | Product | Brand | Model No. | Serial No. | FCC ID |
|-----|----------|-------|-----------|------------|--------|
| 1. | Earphone | N/A | N/A | N/A | N/A |

| No. | Signal Cable Description Of The Above Support Units |
|-----|---|
| 1. | N/A |

Note:

1. All power cords of the above support units are non-shielded (1.8m).

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis, and antenna ports.

The worst case was found when positioned as the table below. Following channel(s) was (were) selected for the final test as listed below:

| Band | ERP | Radiated Emission |
|------|---------|-------------------|
| GPRS | Z-plane | Z-axis |

| EUT Configure Mode | Test Item | Available Channel | Tested Channel | Mode |
|--------------------|-------------------|-------------------|----------------|------|
| - | ERP | 128 to 251 | 128, 189, 251 | GPRS |
| - | Radiated Emission | 128 to 251 | 189 | GPRS |

Test Condition:

| Test Item | Environmental Conditions | Input Power | Tested By |
|-------------------|--------------------------|----------------|---------------|
| ERP | 25 deg. C, 65 % RH | 3.7 Vdc | Charles Hsiao |
| Radiated Emission | 25 deg. C, 65 % RH | 120 Vac, 60 Hz | Charles Hsiao |

3.4 EUT Operating Conditions

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency.

3.5 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2

FCC 47 CFR Part 22

KDB 971168 D01 Power Meas License Digital Systems v02r02

ANSI/TIA/EIA-603-D 2010

NOTE: All test items have been performed and recorded as per the above standards.

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 7 watts e.r.p.

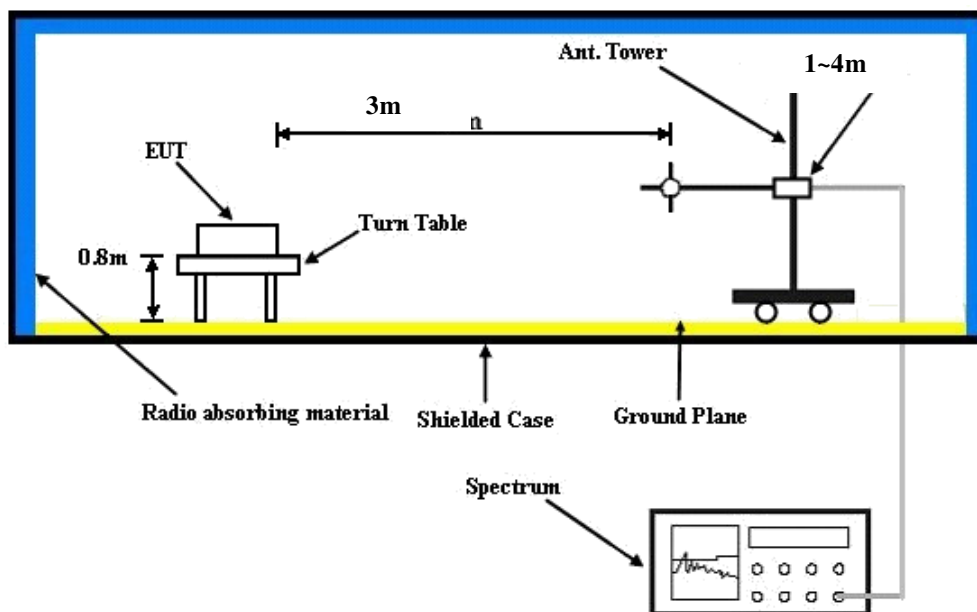
4.1.2 Test Procedures

EIRP / ERP Measurement:

- a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 1 MHz for GSM, GPRS & EDGE, and 5 MHz for WCDMA and CDMA, and 10 MHz for LTE mode.
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G.
- d. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $E.R.P \text{ power} = E.I.P.R \text{ power} - 2.15 \text{ dBi}$.

4.1.3 Test Setup

EIRP / ERP Measurement:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.4 Test Results

ERP Power (dBm)

| GPRS | | | | | | | |
|-------|---------|-----------------|-----------|------------------------|-----------|----------|--------------------|
| Plane | Channel | Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (mW) | Polarization (H/V) |
| Z | 128 | 824.2 | -1.01 | 31.208 | 28.05 | 637.97 | H |
| | 189 | 836.4 | -0.98 | 31.3 | 28.17 | 656.15 | |
| | 251 | 848.8 | -0.88 | 31.222 | 28.19 | 659.48 | |
| V | 128 | 824.2 | -5.85 | 31.504 | 23.50 | 224.08 | V |
| | 189 | 836.4 | -4.98 | 31.117 | 23.99 | 250.44 | |
| | 251 | 848.8 | -5.85 | 31.922 | 23.92 | 246.72 | |

4.2 Radiated Emission Measurement

4.2.1 Limits of Radiated Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit is equal to -13 dBm.

4.2.2 Test Procedure

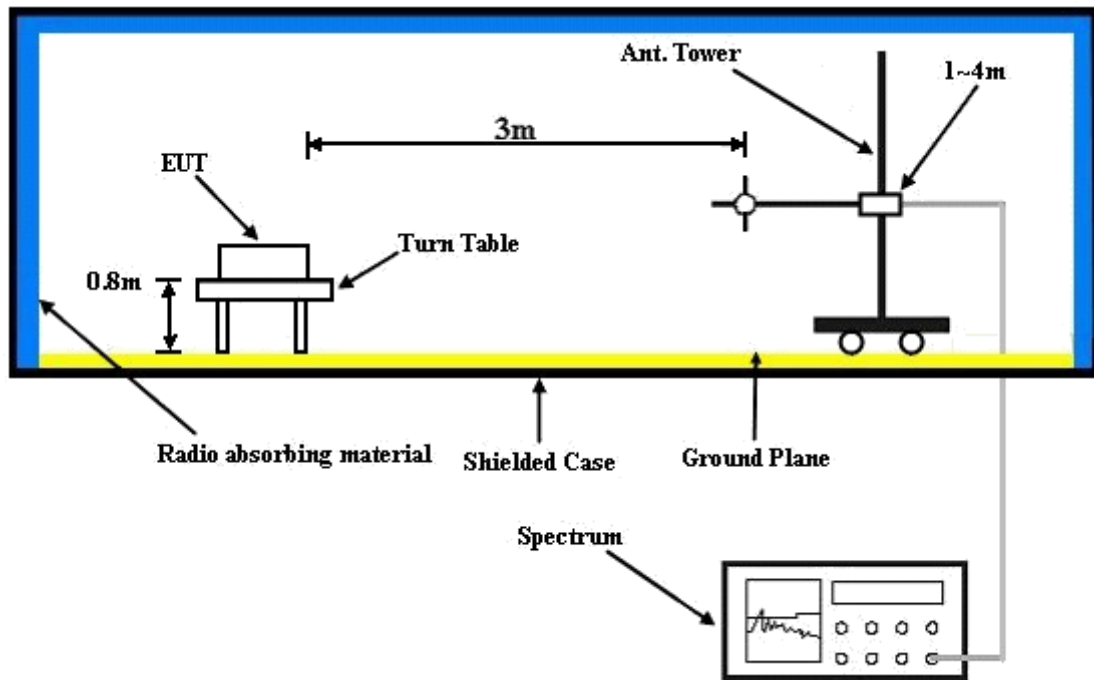
- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G
- c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15 dBi.

NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.

4.2.3 Deviation from Test Standard

No deviation.

4.2.4 Test Setup



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.5 Test Results

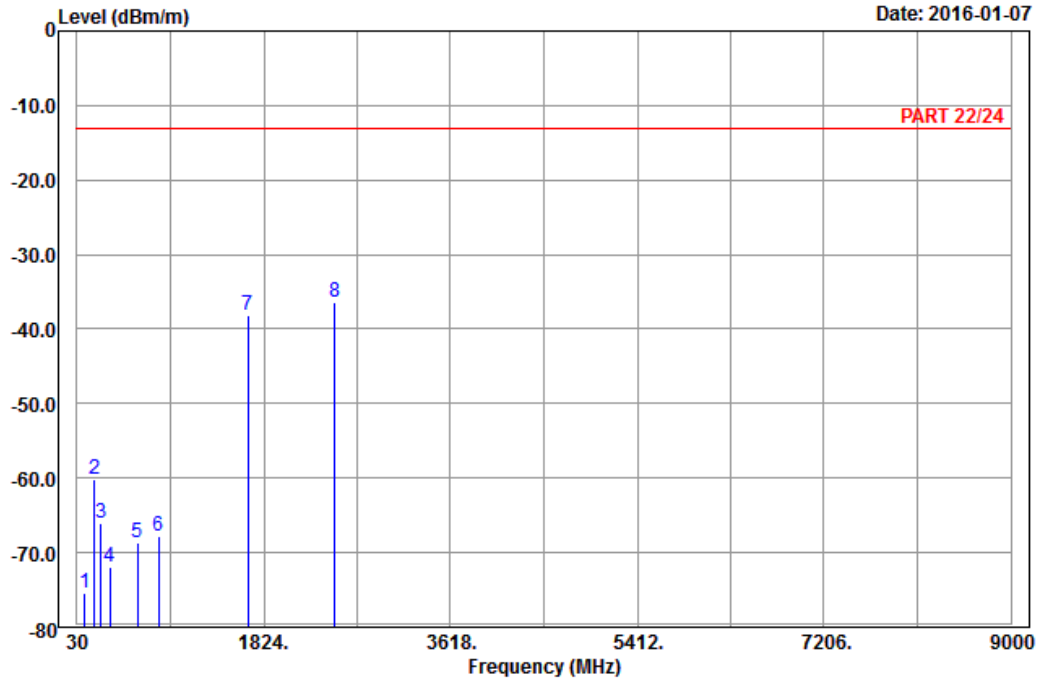


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

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Data: 9

Date: 2016-01-07



Site : 966 chamber 1
 Condition: PART 22/24 3m Horizontal
 Remark : GPRS 850_Link_CH189
 Tested by: Charles Hsiao
 Plane : Z

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|------|---------|--------|------------|------------|------------|--------|--------|
| | MHz | dBm/m | dBm | dBm/m | dB | dB/m | |
| 1 | 102.63 | -75.48 | -65.71 | -13.00 | -62.48 | -9.77 | Peak |
| 2 | 199.29 | -60.20 | -54.02 | -13.00 | -47.20 | -6.18 | Peak |
| 3 | 259.50 | -66.06 | -60.46 | -13.00 | -53.06 | -5.60 | Peak |
| 4 | 346.20 | -71.84 | -66.42 | -13.00 | -58.84 | -5.42 | Peak |
| 5 | 612.20 | -68.74 | -69.03 | -13.00 | -55.74 | 0.29 | Peak |
| 6 | 814.50 | -67.74 | -69.59 | -13.00 | -54.74 | 1.85 | Peak |
| 7 | 1672.80 | -38.10 | -46.01 | -13.00 | -25.10 | 7.91 | Peak |
| 8 pp | 2509.20 | -36.38 | -47.66 | -13.00 | -23.38 | 11.28 | Peak |

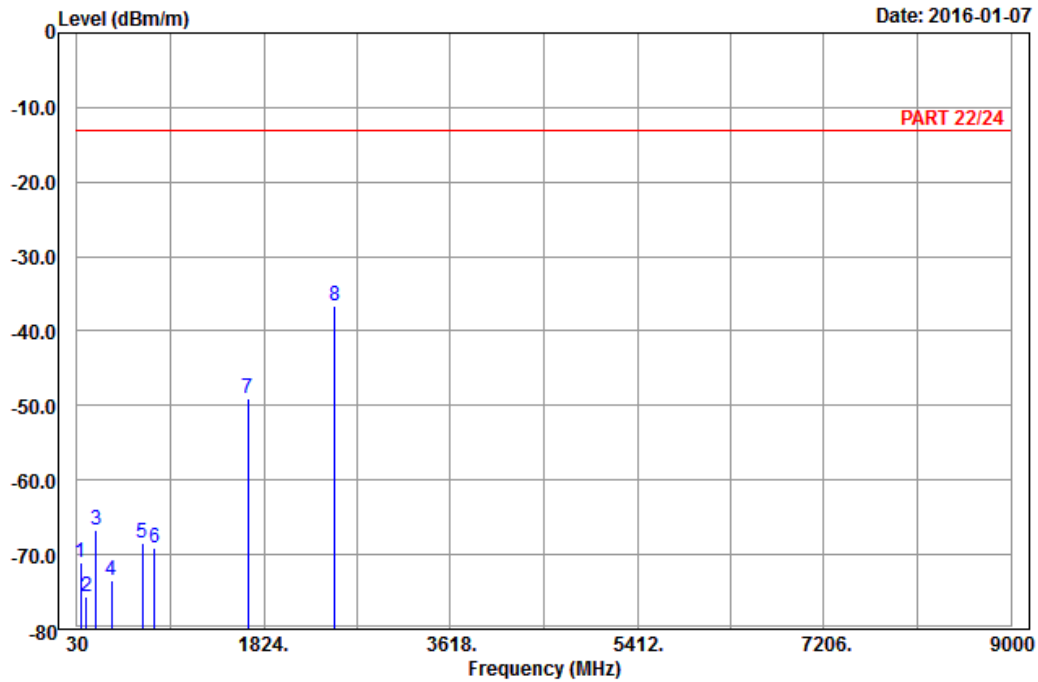


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

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Data: 10

Date: 2016-01-07



Site : 966 chamber 1
 Condition: PART 22/24 3m Vertical
 Remark : GPRS 850_Link_CH189
 Tested by: Charles Hsiao
 Plane : Z

| | Freq | Level | Read Level | Limit Line | Over Limit | Factor | Remark |
|------|---------|--------|------------|------------|------------|--------|--------|
| | MHz | dBm/m | dBm | dBm/m | dB | dB/m | |
| 1 | 61.32 | -70.99 | -57.06 | -13.00 | -57.99 | -13.93 | Peak |
| 2 | 116.67 | -75.70 | -67.19 | -13.00 | -62.70 | -8.51 | Peak |
| 3 | 213.87 | -66.72 | -60.73 | -13.00 | -53.72 | -5.99 | Peak |
| 4 | 358.10 | -73.36 | -68.40 | -13.00 | -60.36 | -4.96 | Peak |
| 5 | 655.60 | -68.42 | -68.26 | -13.00 | -55.42 | -0.16 | Peak |
| 6 | 777.40 | -69.16 | -69.70 | -13.00 | -56.16 | 0.54 | Peak |
| 7 | 1672.80 | -49.07 | -56.98 | -13.00 | -36.07 | 7.91 | Peak |
| 8 pp | 2509.20 | -36.70 | -47.98 | -13.00 | -23.70 | 11.28 | Peak |



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).



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Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

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