





FCC Test Report FCC ID: WMSBE144X

Product: Flash Receiver

Trade Mark: Bellman & Symfon

Model Number: BE1444

Serial Model: BE1442

Report No.: NTEK-2017NT 08045507F

Prepared for

Bellman & Symfon Europe AB

S. Lýngebergsgatan 30 Vastra Frýlunda, 421 32 Sweden

Prepared by

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Applicant's name: Bellman & Symfon Europe AB

TEST RESULT CERTIFICATION

| Address: | S. Lýngel | pergsgatan 30 Vastra Frýlunda, 421 32 Sweden | | | |
|-----------------------------------|----------------------------|---|--|--|--|
| Manufacturer's Name: | Bellman & Symfon Europe AB | | | | |
| Address: | S. Lýngel | pergsgatan 30 Vastra Frýlunda, 421 32 Sweden | | | |
| Product description | | | | | |
| Product name: | Flash Red | ceiver | | | |
| Model and/or type reference : | BE1444 | | | | |
| Standards: | FCC Part ANSI C63 | 15B 3.4:2014 | | | |
| | complian | sted by NTEK, and the test results show that the ce with Part 15 of FCC Rules. And it is applicable only to | | | |
| This report shall not be reproduc | ced except | t in full, without the written approval of NTEK, this | | | |
| • | ised by N7 | TEK, personnel only, and shall be noted in the revision of | | | |
| the document. | | | | | |
| Date of Test | : | | | | |
| Date (s) of performance of tests. | : | 04 Aug 2017 ~25 Aug 2017 | | | |
| Date of Issue | : | 25 Aug 2017 | | | |
| Test Result | : | Pass | | | |
| | | 7 - 7 | | | |
| Testing Engine | eer : | (Lake Xie) | | | |
| | | (Lake Xie) | | | |
| Technical Man | ager : | Jason chen | | | |
| | | (Jason Chen) | | | |
| Authorized Sig | natory: | Sam. Cher | | | |
| | | (Sam Chen) | | | |





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1.. TEST SUMMARY

Test procedures according to the technical standards:

| EMC Emission | | | | | |
|---------------------------------------|--------------------|---------|------|--|--|
| Standard Test Item Limit Judgment Rem | | | | | |
| FCC Part15B | Conducted Emission | Class B | PASS | | |
| ANSI C63.4: 2014 | Radiated Emission | Class B | PASS | | |

NOTE:

- (1) 'N/A' denotes test is not applicable in this Test Report
- (2) For client's request and manual description, the test will not be executed.



1.1. TEST FACILITY

Shenzhen NTEK Testing Technology Co., Ltd

Add.: 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China.

FCC Registration Number:463705; IC Registration Number:9270A-1

CNAS Registration Number:L5516

1.2. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

A. Conducted Measurement:

| Test Site | Method | Measurement Frequency Range | U, (dB) | NOTE |
|-----------|--------|-----------------------------|---------|------|
| NTEKC01 | ANSI | 150 KHz ~ 30MHz | 3.2 | |

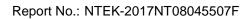
B. Radiated Measurement:

| Test Site | Method | Measurement Frequency Range | U, (dB) | NOTE |
|-----------|--------|-----------------------------|---------|------|
| NTEKA01 | ANSI | 30MHz ~ 1000MHz | 4.7 | |
| | | 1GHz ~12.4GHz | 5.0 | |





| 2 GENERAL INFORMATION | |
|---------------------------------|---|
| 2.1. GENERAL DESCRIPTION OF EUT | |
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| Equipment | Flash Receiver | | | | |
|---------------------|--|-------------------------|--|--|--|
| Trade Mark | Bellman & Symfon | | | | |
| Model Name | BE1444 | | | | |
| Serial Model | BE1442 | | | | |
| Model difference | Flash Receiver BE1444 is Bellman's Receiver with RF communication and Flash function, it can be triggered by Bellman's transmitters and one correct external input signal. BE1444 is not only one normal Bellman's Visit communication function as the same as BE1442, but also with Bellman's EVACO communication function. 900 mAh battery is used in BE1444 model, 600 mAh or 900 mAh battery is used in BE1442 model. | | | | |
| | The EUT is a Flash Rece | eiver. | | | |
| Product Description | Connecting I/O port: | DC | | | |
| • | Operation the Receiver Frequency: | 433.92MHz | | | |
| | Modulation Type: | N/A | | | |
| Power Source | DC Voltage | | | | |
| Power Rating | DC 1.2V*4"AAA",900mAh | or DC 7.5V from Adapter | | | |
| | Adapter 1: | | | | |
| | Model: P12-075150 US | | | | |
| | Input: 100~240V 50/60Hz | 0.3A | | | |
| Adamtan | Output: 7.5V, 1.5A | | | | |
| Adapter | Adapter 2: | | | | |
| | Model: A122-0751500ID | | | | |
| | Input: 100~240V 50/60Hz 0.4A | | | | |
| | Output: 7.5V, 1500mA | | | | |
| Battery | N/A | | | | |
| HW Version | N/A | | | | |
| SW Version | N/A | | | | |





2.1.1. DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

| Pretest Mode | Description |
|--------------|-------------|
| Mode 1 | Receiver |
| Mode 2 | Charging |

| For Conducted Test | | | |
|-----------------------------|----------|--|--|
| Final Test Mode Description | | | |
| Mode 1 | Receiver | | |
| Mode 2 | Charging | | |

| For Radiated Test | | | | |
|-------------------|-------------|--|--|--|
| Final Test Mode | Description | | | |
| Mode 1 | Receiver | | | |
| Mode 2 | Charging | | | |

Note: Final Test Mode: Through Pre-scan, find the mode 3 is the worst case. Only the worst case mode is recorded in the report.

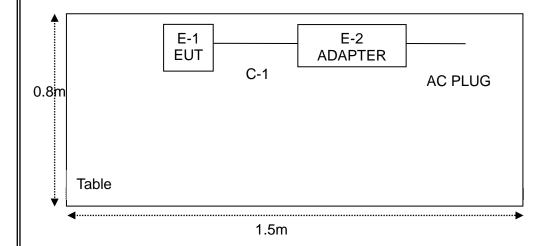
H is stand for high resolution, M is stand for middle resolution, L is stand for Low resolution.



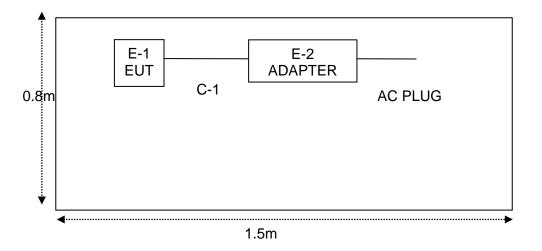


2.2. DESCRIPTION OF TEST SETUP

CE



RE







2.3. DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

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.

| Item | Equipment | Brand | Model/Type No. | Series No. | Note |
|------|----------------|---------------------|----------------|------------|------|
| E-1 | Flash Receiver | Bellman & Symfon | BE1444 | N/A | EUT |
| E-2 | Adapter1 | N/A | P12-075150 US | N/A | |
| E-2 | Adapter2 | N/A | A122-0751500ID | N/A | |
| | | | | | |
| | | | | | |
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| Item | Cable Type | Shielded Type | Ferrite Core | Length | Note |
|------|------------|---------------|--------------|--------|------|
| C-1 | USB Cable | NO | NO | 1.2m | |
| | | | | | |
| | | | | | |
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| | | | | | |
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Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in <code>"Length_"</code> column.
- (3) "YES" means "shielded" "with core"; "NO" means "unshielded" "without core".





2.4. MEASUREMENT INSTRUMENTS LIST

Radiation Test equipment

| | ation rest equip | | T N | 0 111 | 1 4 | 0 11 4 1 | 0 111 (1 |
|------|----------------------------------|--------------|-----------------|-------------------|------------------|------------------|---------------------|
| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until | Calibratio n period |
| 1 | Spectrum Analyzer | Agilent | E4407B | MY4510804 0 | 2017.06.06 | 2018.06.05 | 1 year |
| 2 | Test Receiver | R&S | ESPI | 101318 | 2017.06.06 | 2018.06.05 | 1 year |
| 3 | Bilog Antenna | TESEQ | CBL6111D | 31216 | 2017.04.09 | 2018.04.08 | 1 year |
| 4 | 50Ω Coaxial Switch | Anritsu | MP59B | 620026441 6 | 2017.06.06 | 2018.06.05 | 1 year |
| 5 | Spectrum Analyzer | ADVANTEST | R3132 | 150900201 | 2017.06.06 | 2018.06.05 | 1 year |
| 6 | Horn Antenna | EM | EM-AH-101 80 | 2011071402 | 2017.04.09 | 2018.04.08 | 1 year |
| 7 | Horn Ant | Schwarzbeck | BBHA 9170 | 9170-181 | 2017.07.06 | 2018.07.05 | 1 year |
| 8 | Amplifier | EMC | EMC05183 5SE | 980246 | 2017.08.09 | 2018.08.08 | 1 year |
| 9 | Loop Antenna | ARA | PLA-1030/B | 1029 | 2017.06.06 | 2018.06.05 | 1 year |
| 10 | Power Meter | DARE | RPR3006W | 15I00041S NO84 | 2017.08.09 | 2018.08.08 | 1 year |
| 11 | Power Sensor | R&S | URV5-Z4 | 0395.1619. 05 | 2017.07.06 | 2018.07.05 | 1 year |
| 12 | Test Cable (30MHz-1GH z) | N/A | R-02 | N/A | 2017.04.21 | 2020.04.20 | 3 year |
| 13 | High Test Cable(1G-40 GHz) | N/A | R-03 | N/A | 2017.04.21 | 2020.04.20 | 3 year |
| 14 | High Test Cable(1G-40 GHz) | N/A | R-04 | N/A | 2017.04.21 | 2020.04.20 | 3 year |

Conduction Test equipment

| Item | Kind of Equipment | Manufactu rer | Type No. | Serial No. | Last calibration | Calibrated until | Calibratio n period |
|------|----------------------------|------------------|-----------|----------------|------------------|------------------|---------------------|
| 1 | Test Receiver | R&S | ESCI | 101160 | 2017.06.06 | 2018.06.05 | 1 year |
| 2 | LISN | R&S | ENV216 | 101313 | 2017.04.19 | 2018.04.18 | 1 year |
| 3 | LISN | SCHWAR ZBECK | NNLK 8129 | 8129245 | 2017.06.06 | 2018.06.05 | 1 year |
| 4 | 50Ω Coaxial Switch | ANRITSU CORP | MP59B | 620098370 4 | 2017.06.06 | 2018.06.05 | 1 year |
| 5 | Test Cable (9KHz-30MHz) | N/A | C01 | N/A | 2017.04.21 | 2020.04.20 | 3 year |
| 6 | Test Cable (9KHz-30MHz) | N/A | C02 | N/A | 2017.04.21 | 2020.04.20 | 3 year |
| 7 | Test Cable (9KHz-30MHz) | N/A | C03 | N/A | 2017.04.21 | 2020.04.20 | 3 year |







3.. EMC EMISSION TEST

3.1. CONDUCTED EMISSION MEASUREMENT

3.1.1. POWER LINE CONDUCTED EMISSION

(Frequency Range 150KHz-30MHz)

| | Class A (dBuV) | | Class B (dBuV) | | |
|-----------------|----------------|---------|----------------|-----------|--|
| FREQUENCY (MHz) | Quasi-peak | Average | Quasi-peak | Average | |
| 0.15 -0.5 | 79.00 | 66.00 | 66 - 56 * | 56 - 46 * | |
| 0.50 -5.0 | 73.00 | 60.00 | 56.00 | 46.00 | |
| 5.0 -30.0 | 73.00 | 60.00 | 60.00 | 50.00 | |

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

| Receiver Parameters | Setting |
|---------------------|----------|
| Attenuation | 10 dB |
| Start Frequency | 0.15 MHz |
| Stop Frequency | 30 MHz |
| IF Bandwidth | 9 kHz |

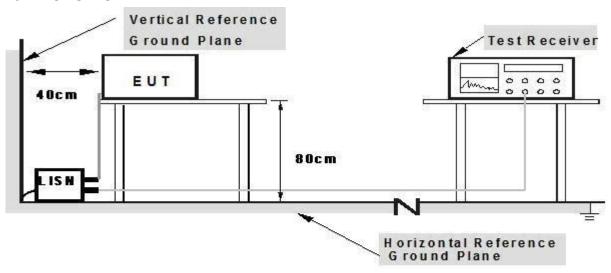




3.1.2. TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3. TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.4. EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

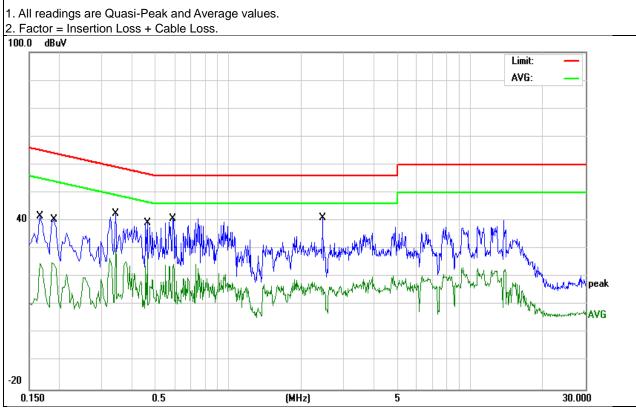




3.1.5. TEST RESULTS

| EUT: | Flash Receiver | Model Name. : | BE1444 | | |
|---------------|---|--------------------|------------|--|--|
| Temperature: | 26 ℃ | Relative Humidity: | 54% | | |
| Pressure: | 1010hPa | Test Date: | 2017-08-04 | | |
| Test Mode: | Mode 1 Phase : L | | | | |
| Test Voltage: | Voltage: DC 7.5V from adapter#1 AC120V/60Hz | | | | |

| Frequency | Reading Level | Correct Factor | Measure-ment | Limits | Margin | Damark |
|-----------|---------------|----------------|--------------|--------|--------|--------|
| (MHz) | (dBµV) | (dB) | (dBµV) | (dBµV) | (dB) | Remark |
| 0.1660 | 31.86 | 9.92 | 41.78 | 65.15 | -23.37 | QP |
| 0.1660 | 14.86 | 9.92 | 24.78 | 55.15 | -30.37 | AVG |
| 0.1900 | 30.50 | 9.92 | 40.42 | 64.03 | -23.61 | QP |
| 0.1900 | 15.28 | 9.92 | 25.20 | 54.03 | -28.83 | AVG |
| 0.3420 | 32.67 | 9.92 | 42.59 | 59.15 | -16.56 | QP |
| 0.3420 | 20.33 | 9.92 | 30.25 | 49.15 | -18.90 | AVG |
| 0.4620 | 29.38 | 9.93 | 39.31 | 56.66 | -17.35 | QP |
| 0.4620 | 16.97 | 9.93 | 26.90 | 46.66 | -19.76 | AVG |
| 0.5940 | 30.80 | 9.93 | 40.73 | 56.00 | -15.27 | QP |
| 0.5940 | 14.68 | 9.93 | 24.61 | 46.00 | -21.39 | AVG |
| 2.4500 | 30.99 | 9.94 | 40.93 | 56.00 | -15.07 | QP |
| 2.4500 | 6.75 | 9.94 | 16.69 | 46.00 | -29.31 | AVG |

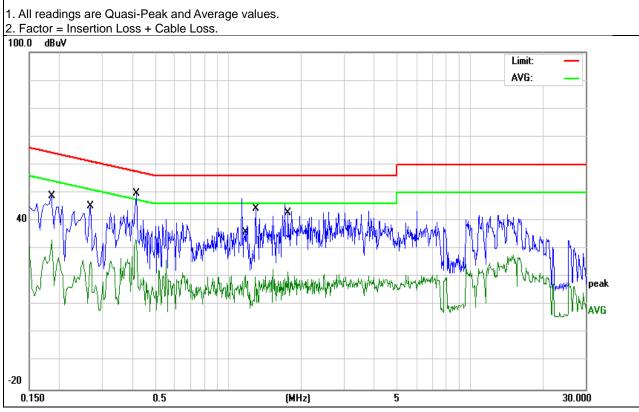






| EUT: | Flash Receiver | Model Name. : | BE1444 | | |
|---------------|------------------------------------|--------------------|------------|--|--|
| Temperature: | 26 ℃ | Relative Humidity: | 54% | | |
| Pressure: | 1010hPa | Test Date: | 2017-08-04 | | |
| Test Mode: | Mode 1 Phase : N | | | | |
| Test Voltage: | DC 7.5V from adapter#1 AC120V/60Hz | | | | |

| Frequency | Reading Level | Correct Factor | Measure-ment | Limits | Margin | Remark |
|-----------|---------------|----------------|--------------|--------|--------|--------|
| (MHz) | (dBµV) | (dB) | (dBµV) | (dBµV) | (dB) | Remark |
| 0.1859 | 39.04 | 9.92 | 48.96 | 64.21 | -15.25 | QP |
| 0.1859 | 23.29 | 9.92 | 33.21 | 54.21 | -21.00 | AVG |
| 0.2700 | 35.24 | 9.92 | 45.16 | 61.12 | -15.96 | QP |
| 0.2700 | 15.55 | 9.92 | 25.47 | 51.12 | -25.65 | AVG |
| 0.4179 | 39.81 | 9.93 | 49.74 | 57.49 | -7.75 | QP |
| 0.4179 | 23.26 | 9.93 | 33.19 | 47.49 | -14.30 | AVG |
| 1.1739 | 38.16 | 9.93 | 48.09 | 56.00 | -7.91 | QP |
| 1.1739 | 10.58 | 9.93 | 20.51 | 46.00 | -25.49 | AVG |
| 1.3020 | 34.32 | 9.93 | 44.25 | 56.00 | -11.75 | QP |
| 1.3020 | 10.04 | 9.93 | 19.97 | 46.00 | -26.03 | AVG |
| 1.7660 | 35.97 | 9.94 | 45.91 | 56.00 | -10.09 | QP |
| 1.7660 | 11.83 | 9.94 | 21.77 | 46.00 | -24.23 | AVG |

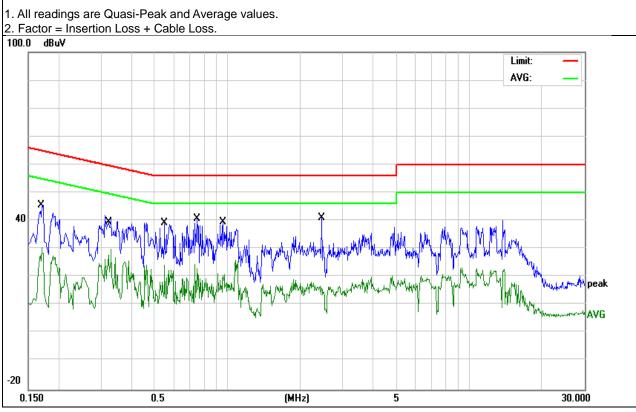






| EUT: | Flash Receiver | Model Name. : | BE1444 | | |
|---------------|------------------------------------|--------------------|------------|--|--|
| Temperature: | 26 ℃ | Relative Humidity: | 54% | | |
| Pressure: | 1010hPa | Test Date: | 2017-08-04 | | |
| Test Mode: | Mode 1 Phase : L | | | | |
| Test Voltage: | DC 7.5V from adapter#1 AC240V/60Hz | | | | |

| Frequency | Reading Level | Correct Factor | Measure-ment | Limits | Margin | Remark |
|-----------|---------------|----------------|--------------|--------|--------|--------|
| (MHz) | (dBµV) | (dB) | (dBµV) | (dBµV) | (dB) | Remark |
| 0.1703 | 35.78 | 9.92 | 45.70 | 64.94 | -19.24 | QP |
| 0.1703 | 20.49 | 9.92 | 30.41 | 54.94 | -24.53 | AVG |
| 0.3220 | 32.18 | 9.92 | 42.10 | 59.65 | -17.55 | QP |
| 0.3220 | 17.89 | 9.92 | 27.81 | 49.65 | -21.84 | AVG |
| 0.5500 | 29.40 | 9.93 | 39.33 | 56.00 | -16.67 | QP |
| 0.5500 | 14.25 | 9.93 | 24.18 | 46.00 | -21.82 | AVG |
| 0.7500 | 30.72 | 9.93 | 40.65 | 56.00 | -15.35 | QP |
| 0.7500 | 14.49 | 9.93 | 24.42 | 46.00 | -21.58 | AVG |
| 0.9618 | 29.47 | 9.93 | 39.40 | 56.00 | -16.60 | QP |
| 0.9618 | 16.21 | 9.93 | 26.14 | 46.00 | -19.86 | AVG |
| 2.4500 | 30.99 | 9.94 | 40.93 | 56.00 | -15.07 | QP |
| 2.4500 | 8.01 | 9.94 | 17.95 | 46.00 | -28.05 | AVG |

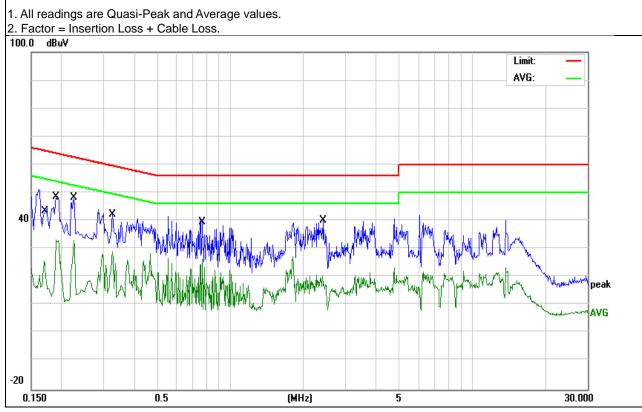






| EUT: | Flash Receiver | Model Name. : | BE1444 | | | |
|---------------|------------------------------------|--------------------|------------|--|--|--|
| Temperature: | 26 ℃ | Relative Humidity: | 54% | | | |
| Pressure: | 1010hPa | Test Date: | 2017-08-04 | | | |
| Test Mode: | Mode 1 Phase : N | | | | | |
| Test Voltage: | DC 7.5V from adapter#1 AC240V/60Hz | | | | | |

| Frequency | Reading Level | Correct Factor | Measure-ment | Limits | Margin | Domorle |
|-----------|---------------|----------------|--------------|--------|--------|---------|
| (MHz) | (dBµV) | (dB) | (dBµV) | (dBµV) | (dB) | Remark |
| 0.1700 | 41.28 | 9.92 | 51.20 | 64.96 | -13.76 | QP |
| 0.1700 | 15.93 | 9.92 | 25.85 | 54.96 | -29.11 | AVG |
| 0.1903 | 38.68 | 9.92 | 48.60 | 64.02 | -15.42 | QP |
| 0.1903 | 23.27 | 9.92 | 33.19 | 54.02 | -20.83 | AVG |
| 0.2260 | 38.18 | 9.92 | 48.10 | 62.59 | -14.49 | QP |
| 0.2260 | 22.94 | 9.92 | 32.86 | 52.59 | -19.73 | AVG |
| 0.3260 | 32.33 | 9.92 | 42.25 | 59.55 | -17.30 | QP |
| 0.3260 | 19.12 | 9.92 | 29.04 | 49.55 | -20.51 | AVG |
| 0.7660 | 30.75 | 9.93 | 40.68 | 56.00 | -15.32 | QP |
| 0.7660 | 16.42 | 9.93 | 26.35 | 46.00 | -19.65 | AVG |
| 2.4340 | 30.29 | 9.94 | 40.23 | 56.00 | -15.77 | QP |
| 2.4340 | 10.28 | 9.94 | 20.22 | 46.00 | -25.78 | AVG |



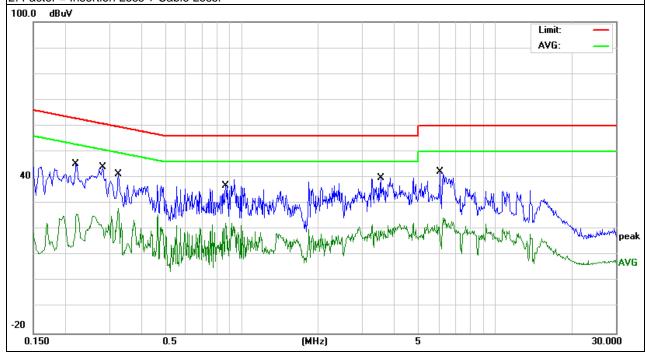




| EUT: | Flash Receiver | Model Name.: | BE1444 | | |
|---------------|--|--------------------|------------|--|--|
| Temperature: | 26 ℃ | Relative Humidity: | 54% | | |
| Pressure: | 1010hPa | Test Date: | 2017-08-04 | | |
| Test Mode: | Mode 1 Phase : L | | | | |
| Test Voltage: | Test Voltage: DC 7.5V from adapter#2 AC120V/60Hz | | | | |

| Frequency | Reading Level | Correct Factor | Measure-ment | Limits | Margin | Remark | |
|-----------|---------------|----------------|--------------|--------|--------|-----------|--|
| (MHz) | (dBµV) | (dB) | (dBµV) | (dBµV) | (dB) | INGIIIAIN | |
| 0.2220 | 35.39 | 9.92 | 45.31 | 62.74 | -17.43 | QP | |
| 0.2220 | 16.07 | 9.92 | 25.99 | 52.74 | -26.75 | AVG | |
| 0.2816 | 34.00 | 9.92 | 43.92 | 60.77 | -16.85 | QP | |
| 0.2816 | 12.02 | 9.92 | 21.94 | 50.77 | -28.83 | AVG | |
| 0.3260 | 31.33 | 9.92 | 41.25 | 59.55 | -18.30 | QP | |
| 0.3260 | 18.12 | 9.92 | 28.04 | 49.55 | -21.51 | AVG | |
| 0.8618 | 29.29 | 9.93 | 39.22 | 56.00 | -16.78 | QP | |
| 0.8618 | 12.58 | 9.93 | 22.51 | 46.00 | -23.49 | AVG | |
| 3.5419 | 29.84 | 9.95 | 39.79 | 56.00 | -16.21 | QP | |
| 3.5419 | 9.77 | 9.95 | 19.72 | 46.00 | -26.28 | AVG | |
| 6.0658 | 32.31 | 10.01 | 42.32 | 60.00 | -17.68 | QP | |
| 6.0658 | 14.45 | 10.01 | 24.46 | 50.00 | -25.54 | AVG | |

- 1. All readings are Quasi-Peak and Average values.
- 2. Factor = Insertion Loss + Cable Loss.



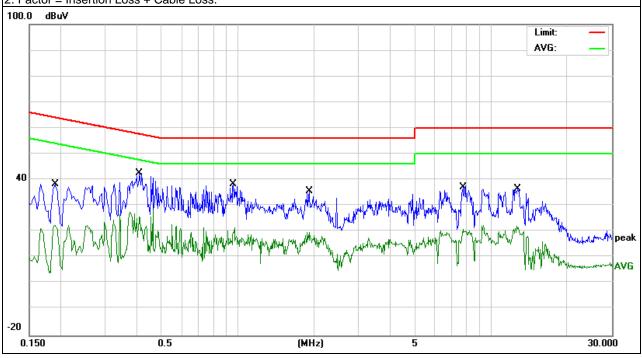




| EUT: | Flash Receiver | Model Name. : | BE1444 | | |
|---------------|------------------------------------|--------------------|------------|--|--|
| Temperature: | 26 ℃ | Relative Humidity: | 54% | | |
| Pressure: | 1010hPa | Test Date: | 2017-08-04 | | |
| Test Mode: | Mode 1 Phase : N | | | | |
| Test Voltage: | DC 7.5V from adapter#2 AC120V/60Hz | | | | |

| Frequency | Reading Level | Correct Factor | Measure-ment | Limits | Margin | Remark | |
|-----------|---------------|----------------|--------------|--------|--------|-----------|--|
| (MHz) | (dBµV) | (dB) | (dBµV) | (dBµV) | (dB) | INGILIAIN | |
| 0.1900 | 28.50 | 9.92 | 38.42 | 64.03 | -25.61 | QP | |
| 0.1900 | 12.63 | 9.92 | 22.55 | 54.03 | -31.48 | AVG | |
| 0.4102 | 32.68 | 9.93 | 42.61 | 57.64 | -15.03 | QP | |
| 0.4102 | 15.60 | 9.93 | 25.53 | 47.64 | -22.11 | AVG | |
| 0.9617 | 28.47 | 9.93 | 38.40 | 56.00 | -17.60 | QP | |
| 0.9617 | 11.53 | 9.93 | 21.46 | 46.00 | -24.54 | AVG | |
| 1.9137 | 25.63 | 9.94 | 35.57 | 56.00 | -20.43 | QP | |
| 1.9137 | 9.81 | 9.94 | 19.75 | 46.00 | -26.25 | AVG | |
| 7.7659 | 27.80 | 10.07 | 37.87 | 60.00 | -22.13 | QP | |
| 7.7659 | 11.00 | 10.07 | 21.07 | 50.00 | -28.93 | AVG | |
| 12.6659 | 26.38 | 10.17 | 36.55 | 60.00 | -23.45 | QP | |
| 12.6659 | 12.07 | 10.17 | 22.24 | 50.00 | -27.76 | AVG | |

- All readings are Quasi-Peak and Average values.
 Factor = Insertion Loss + Cable Loss.

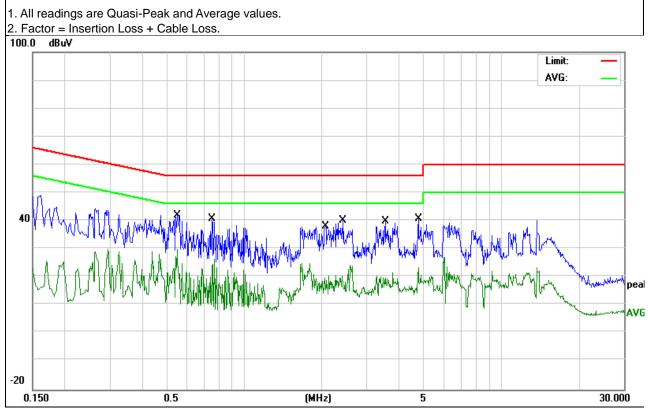






| EUT: | Flash Receiver | Model Name. : | BE1444 | | |
|---------------|---------------------------------------|--------------------|------------|--|--|
| Temperature: | 26 ℃ | Relative Humidity: | 54% | | |
| Pressure: | 1010hPa | Test Date: | 2017-08-04 | | |
| Test Mode: | Mode 1 Phase : L | | | | |
| Test Voltage: | e: DC 7.5V from adapter#2 AC240V/60Hz | | | | |

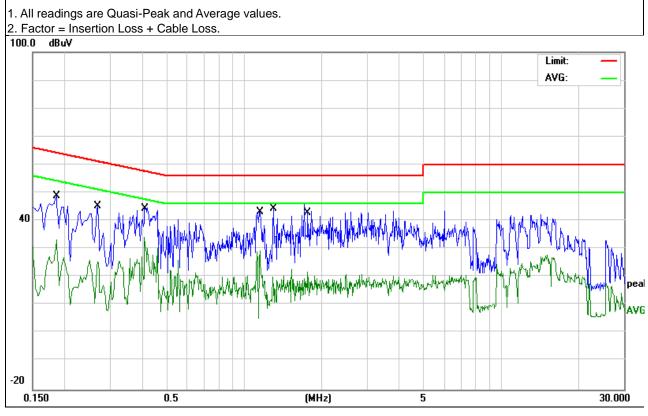
| Frequency | Reading Level | Correct Factor | Measure-ment | Limits | Margin | Damade | |
|-----------|---------------|----------------|--------------|--------|--------|--------|--|
| (MHz) | (dBµV) | (dB) | (dBµV) | (dBµV) | (dB) | Remark | |
| 0.5540 | 32.17 | 9.93 | 42.10 56.00 | | -13.90 | QP | |
| 0.5540 | 13.46 | 9.93 | 23.39 | 46.00 | -22.61 | AVG | |
| 0.7500 | 30.75 | 9.93 | 40.68 | 56.00 | -15.32 | QP | |
| 0.7500 | 13.96 | 9.93 | 23.89 | 46.00 | -22.11 | AVG | |
| 2.0700 | 28.02 | 9.94 | 37.96 | 56.00 | -18.04 | QP | |
| 2.0700 | 9.87 | 9.94 | 19.81 | 46.00 | -26.19 | AVG | |
| 2.4340 | 30.29 | 9.94 | 40.23 | 56.00 | -15.77 | QP | |
| 2.4340 | 10.28 | 9.94 | 20.22 | 46.00 | -25.78 | AVG | |
| 3.5500 | 29.84 | 9.95 | 39.79 | 56.00 | -16.21 | QP | |
| 3.5500 | 7.96 | 9.95 | 17.91 | 46.00 | -28.09 | AVG | |
| 4.7899 | 30.91 | 9.96 | 40.87 | 56.00 | -15.13 | QP | |
| 4.7899 | 8.75 | 9.96 | 18.71 | 46.00 | -27.29 | AVG | |





| EUT: | Flash Receiver | Model Name. : | BE1444 | | |
|---------------|---------------------------------------|--------------------|------------|--|--|
| Temperature: | 26 ℃ | Relative Humidity: | 54% | | |
| Pressure: | 1010hPa | Test Date: | 2017-08-04 | | |
| Test Mode: | Mode 1 Phase : N | | | | |
| Test Voltage: | e: DC 7.5V from adapter#2 AC240V/60Hz | | | | |

| Frequency | Reading Level | Correct Factor | Measure-ment | Limits | Margin | Remark | |
|-----------|---------------|----------------|--------------|--------|--------|-----------|--|
| (MHz) | (dBµV) | (dB) | (dBµV) | (dBµV) | (dB) | INGIIIAIN | |
| 0.1872 | 39.04 | 9.92 | 48.96 64.16 | | -15.20 | QP | |
| 0.1872 | 17.74 | 9.92 | 27.66 | 54.16 | -26.50 | AVG | |
| 0.2700 | 35.24 | 9.92 | 45.16 | 61.12 | -15.96 | QP | |
| 0.2700 | 15.55 | 9.92 | 25.47 | 51.12 | -25.65 | AVG | |
| 0.4103 | 34.57 | 9.93 | 44.50 | 57.64 | -13.14 | QP | |
| 0.4103 | 24.25 | 9.93 | 34.18 | 47.64 | -13.46 | AVG | |
| 1.1539 | 33.17 | 9.93 | 43.10 | 56.00 | -12.90 | QP | |
| 1.1539 | 15.28 | 9.93 | 25.21 | 46.00 | -20.79 | AVG | |
| 1.3020 | 34.32 | 9.93 | 44.25 | 56.00 | -11.75 | QP | |
| 1.3020 | 5.53 | 9.93 | 15.46 | 46.00 | -30.54 | AVG | |
| 1.7500 | 35.97 | 9.94 | 45.91 | 56.00 | -10.09 | QP | |
| 1.7500 | 7.40 | 9.94 | 17.34 | 46.00 | -28.66 | AVG | |





3.2. RADIATED EMISSION MEASUREMENT

3.2.1. LIMITS OF RADIATED EMISSION MEASUREMENT

| | Class A (at 10m) | Class B (at 3m) | |
|-----------------|------------------|-----------------|--|
| FREQUENCY (MHz) | dBuV/m | dBuV/m | |
| 30 ~ 88 | 39.0 | 40.0 | |
| 88 ~ 216 | 43.5 | 43.5 | |
| 216 ~ 960 | 46.5 | 46.0 | |
| Above 960 | 49.5 | 54.0 | |

Notes:

- (1) The limit for radiated test was performed according to as following: FCC PART 15B /ICES-003.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

3.2.2. TEST PROCEDURE

Test Arrangement for Radiated Emissions up to 1 GHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited test facility. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for quasi-peak detection (QP) at frequency below 1GHz.

Test Arrangement for Radiated Emissions above 1 GHz.

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at an
- b. accredited chamber room. The table was rotated 360 degrees to determine the position of
- c. the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The height of antenna can be varied from one meter to four meters, the height of
- e. adjustment depends on the EUT height and the antenna 3dB beamwidth both, to detect
- f. the maximum value of the field strength. Both horizontal and vertical polarizations of the
- g. antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.





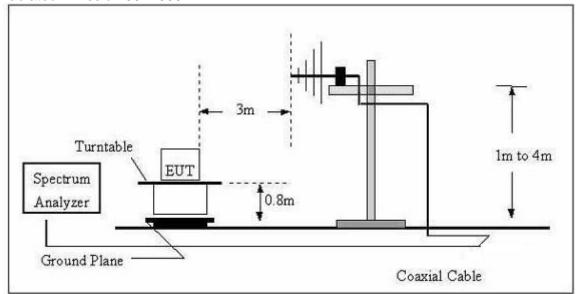
Note: For the hand-held device, the EUT should be measured for all 3 axes and only the worst case is recorded in the report

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

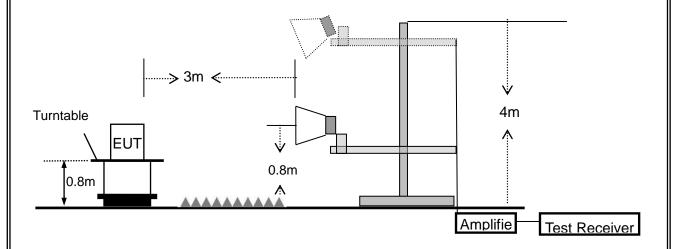
| Frequency Band (MHz) | Function | Resolution bandwidth | Video Bandwidth |
|-------------------------|----------|----------------------|-----------------|
| 30 to 1000 | QP | 120 kHz | 300 kHz |
| | Peak | 1 MHz | 1 MHz |
| Above 1000 | Avg | 1 MHz | 10 Hz |

3.2.3. TEST SETUP

For Radiated Emission 30~1000MHz



Radiated Emission Test Set-Up Frequency Above 1GHz







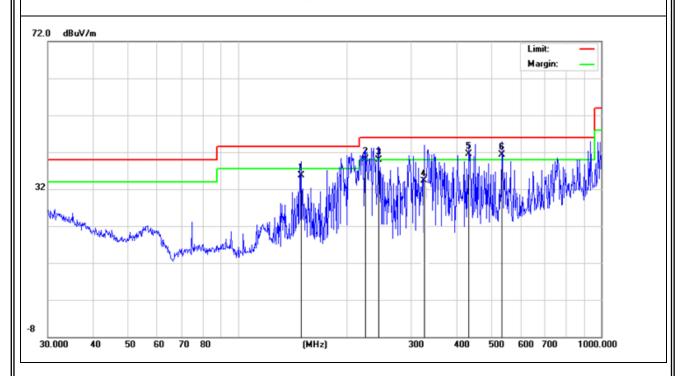
3.2.4. TEST RESULTS

TEST RESULTS (30~1000 MHz)

| EUT: | Flash Receiver | Model Name: | BE1444 | | | |
|--------------|------------------------------------|----------------------------------|------------|--|--|--|
| Temperature: | 24 °C | Relative Humidity: | 54% | | | |
| Pressure: | 1010 hPa | Test Date : | 2017-08-04 | | | |
| Test Mode: | Mode 1 | Mode 1 Polarization : Horizontal | | | | |
| Test Power: | DC 7.5V from adapter#1 AC120V/60Hz | | | | | |

| Polar | Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Remark |
|-------|-----------|------------------|--------|-------------------|----------|--------|--------|
| (H/V) | (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dB) | remark |
| Н | 149.4857 | 24.39 | 11.29 | 35.68 | 43.50 | -7.82 | QP |
| Н | 224.5192 | 27.92 | 12.19 | 40.11 | 46.00 | -5.89 | QP |
| Н | 244.2321 | 28.03 | 11.95 | 39.98 | 46.00 | -6.02 | QP |
| Н | 326.7395 | 20.51 | 13.74 | 34.25 | 46.00 | -15.75 | QP |
| Н | 432.5457 | 25.10 | 16.47 | 41.57 | 46.00 | -4.43 | QP |
| Н | 531.9634 | 23.49 | 17.87 | 41.36 | 46.00 | -4.64 | QP |

Remark:



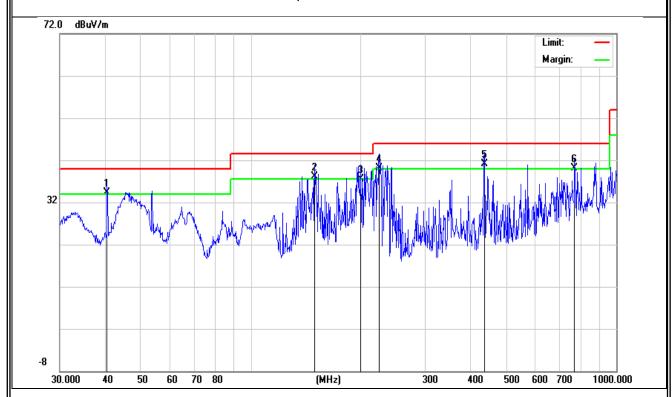




| EUT: | Flash Receiver | Model Name : | BE1444 | |
|--|----------------|--------------------|------------|--|
| Temperature: | 24 °C | Relative Humidity: | 54% | |
| Pressure: | 1010 hPa | Test Date : | 2017-08-04 | |
| Test Mode: | Mode 1 | Polarization: | Vertical | |
| Test Power: DC 7.5V from adapter#1 AC120V/60Hz | | | | |

| Polar (H/V) V V V V V V | Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Remark |
|-------------------------------|-----------|------------------|--------|-------------------|----------|--------|--------|
| (H/V) | (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dB) | |
| V | 40.4172 | 18.17 | 16.11 | 34.28 | 40.00 | -5.72 | QP |
| V | 149.4857 | 26.85 | 11.29 | 38.14 | 43.50 | -5.36 | QP |
| V | 199.9856 | 23.83 | 13.76 | 37.59 | 43.50 | -5.91 | QP |
| V | 224.5192 | 27.92 | 12.19 | 40.11 | 46.00 | -5.89 | QP |
| V | 435.5898 | 24.77 | 16.26 | 41.03 | 46.00 | -4.97 | QP |
| V | 768.7481 | 17.81 | 22.36 | 40.17 | 46.00 | -5.83 | QP |

Remark:



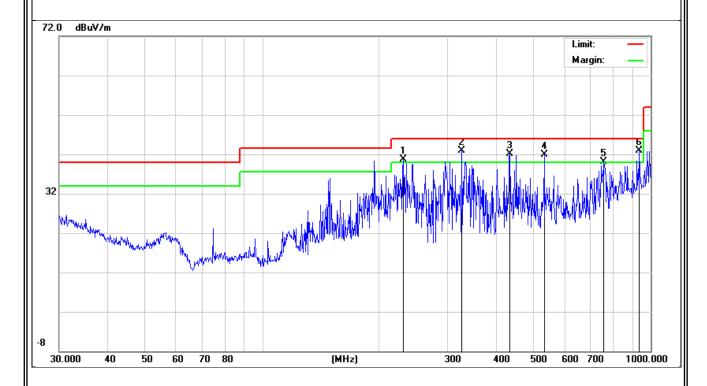




| EUT: | Flash Receiver | Model Name: | BE1444 | |
|--|----------------|--------------------|------------|--|
| Temperature: | 24 ℃ | Relative Humidity: | 54% | |
| Pressure: | 1010 hPa | Test Date : | 2017-08-04 | |
| Test Mode : | Mode 1 | Polarization: | Horizontal | |
| Test Power: DC 7.5V from adapter#2 AC120V/60Hz | | | | |

| Polar (H/V) | Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Remark |
|------------------|-----------|------------------|--------|-------------------|----------|--------|------------|
| (H/V) | (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dB) | rtorriarit |
| Н | 230.9068 | 28.67 | 12.06 | 40.73 | 46.00 | -5.27 | QP |
| Н | 326.7395 | 29.15 | 13.74 | 42.89 | 46.00 | -3.11 | QP |
| Н | 434.0649 | 25.80 | 16.36 | 42.16 | 46.00 | -3.84 | QP |
| Н | 531.9633 | 24.01 | 17.87 | 41.88 | 46.00 | -4.12 | QP |
| H H H H | 758.0407 | 17.70 | 22.34 | 40.04 | 46.00 | -5.96 | QP |
| Н | 935.5461 | 16.66 | 26.26 | 42.92 | 46.00 | -3.08 | QP |

Remark:



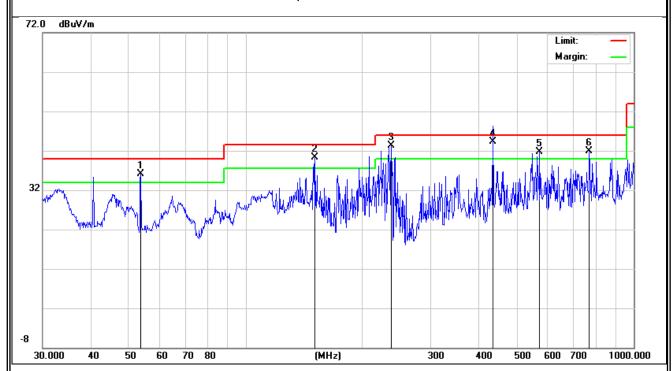




| EUT: | Flash Receiver | Model Name : | BE1444 | |
|--|----------------|--------------------|------------|--|
| Temperature: | 24 ℃ | Relative Humidity: | 54% | |
| Pressure: | 1010 hPa | Test Date : | 2017-08-04 | |
| Test Mode: | Mode 1 | Polarization: | Vertical | |
| Test Power: DC 7.5V from adapter#2 AC120V/60Hz | | | | |

| Polar (H/V) V V V V V V | Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Remark |
|-------------------------------|-----------|------------------|--------|-------------------|----------|--------|--------|
| (H/V) | (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dB) | |
| V | 53.6931 | 23.72 | 12.43 | 36.15 | 40.00 | -3.85 | QP |
| V | 151.0663 | 28.96 | 11.25 | 40.21 | 43.50 | -3.29 | QP |
| V | 237.4755 | 31.32 | 12.01 | 43.33 | 46.00 | -2.67 | QP |
| V | 434.0649 | 26.89 | 16.36 | 43.25 | 46.00 | -2.75 | QP |
| V | 572.6144 | 23.08 | 18.72 | 41.80 | 46.00 | -4.20 | QP |
| V | 768.7481 | 19.49 | 22.36 | 41.85 | 46.00 | -4.15 | QP |

Remark:







3.2.5. TEST RESULTS(1000~6000MHz)

| EUT: | Flash Receiver | Model Name : | BE1444 | | | | |
|--------------|------------------------------------|--------------------|------------|--|--|--|--|
| Temperature: | 24 °C | Relative Humidity: | 54% | | | | |
| Pressure: | 1010 hPa | Test Date : | 2017-08-04 | | | | |
| Test Mode: | Mode 1 | Mode 1 | | | | | |
| Test Power: | DC 7.5V from adapter#1 AC120V/60Hz | | | | | | |

All the modulation modes have been tested, and the worst result was report as below:

| Polar (H/V) | Frequency | Reading | Correct | Result | Limit | Over Limit | Remark |
|----------------|-----------|----------|---------|----------|----------|------------|--------|
| | (MHz) | (dBuV/m) | dB/m | (dBuV/m) | (dBuV/m) | (dB) | |
| V | 1933.5690 | 60.57 | -9.27 | 51.30 | 74.00 | -22.70 | Pk |
| V | 1933.5690 | 50.96 | -9.27 | 41.69 | 54.00 | -12.31 | AV |
| V | 2114.7900 | 55.78 | -6.98 | 48.80 | 74.00 | -25.20 | Pk |
| V | 2114.7900 | 45.58 | -6.98 | 38.60 | 54.00 | -15.40 | AV |
| V | 2480.4050 | 56.24 | -7.54 | 48.70 | 74.00 | -25.30 | Pk |
| V | 2480.4050 | 47.05 | -7.54 | 39.51 | 54.00 | -14.49 | AV |
| Н | 1842.2540 | 62.33 | -9.63 | 52.70 | 74.00 | -21.30 | Pk |
| Н | 1842.2540 | 50.66 | -9.63 | 41.03 | 54.00 | -12.97 | AV |
| Н | 1996.9460 | 58.33 | -8.53 | 49.80 | 74.00 | -24.20 | Pk |
| Н | 1996.9460 | 47.04 | -8.53 | 38.51 | 54.00 | -15.49 | AV |
| Н | 2791.7770 | 55.84 | -6.24 | 49.60 | 74.00 | -24.40 | Pk |
| Н | 2791.7770 | 45.54 | -6.24 | 39.30 | 54.00 | -14.70 | AV |





| EUT: | Flash Receiver | Model Name : | BE1444 | | | | |
|--------------|------------------------------------|--------------------|------------|--|--|--|--|
| Temperature: | 24 °C | Relative Humidity: | 54% | | | | |
| Pressure: | 1010 hPa | Test Date : | 2017-08-04 | | | | |
| Test Mode: | Mode 1 | Mode 1 | | | | | |
| Test Power: | DC 7.5V from adapter#2 AC120V/60Hz | | | | | | |

All the modulation modes have been tested, and the worst result was report as below:

| Polar (H/V) | Frequency | Reading | Correct | Result | Limit | Over Limit | Remark |
|----------------|-----------|----------|---------|----------|----------|------------|--------|
| | (MHz) | (dBuV/m) | dB/m | (dBuV/m) | (dBuV/m) | (dB) | |
| V | 1149.9950 | 70.66 | -10.19 | 60.47 | 74.00 | -13.53 | Pk |
| V | 1149.9950 | 46.65 | -10.19 | 36.46 | 54.00 | -17.54 | AV |
| V | 2566.3010 | 65.12 | -5.54 | 59.58 | 74.00 | -14.42 | Pk |
| V | 2566.3010 | 31.08 | -5.54 | 25.54 | 54.00 | -28.46 | AV |
| V | 3069.8890 | 69.33 | -4.9 | 64.43 | 74.00 | -9.57 | Pk |
| V | 3069.8890 | 38.88 | -4.9 | 33.98 | 54.00 | -20.02 | AV |
| Н | 1418.2070 | 70.72 | -9.31 | 61.41 | 74.00 | -12.59 | Pk |
| Н | 1418.2070 | 45.45 | -9.31 | 36.14 | 54.00 | -17.86 | AV |
| Н | 2296.4770 | 62.94 | -6.34 | 56.60 | 74.00 | -17.40 | Pk |
| Н | 2296.4770 | 31.68 | -6.34 | 25.34 | 54.00 | -28.66 | AV |
| Н | 3047.9660 | 63.15 | -4.94 | 58.21 | 74.00 | -15.79 | Pk |
| Н | 3047.9660 | 31.79 | -4.94 | 26.85 | 54.00 | -27.15 | AV |

Remark:

Emission Level = Read Level+Antenna Factor + Cable Loss - Amplifier.

Margin= Emission Level-Limits

Note:

- 1. Measuring frequencies from 1 GHz to 13GHz.
- 2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using

Peak detector mode of the emission shown in Actual FS column.

3. The frequency that above 3GHz is mainly from the environment noise

END OF REPORT