



47 CFR PART 15.209

# TEST REPORT

of

## SafeQ Terminal Professional

Trade Name: /

Brand Name: /

Model Name: YP04020 001 - Terminal Pro MotInd W26

Report No.: SH10060024E01

FCC ID.: XUY0YX0X020000

*prepared for*

### Y Soft Corporation, a.s.

U Knezske louky 2151/18, 130 00 Praha 3, Czech Republic



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LAB CODE 20081223-00

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## 1. TEST CERTIFICATION

Equipment under Test: SafeQ Terminal Professional

Brand Name: /  
Model Name: YP04020 001 - Terminal Pro MotInd W26  
FCC ID: XUY0YX0X020000  
Applicant: Y Soft Corporation, a.s.  
U Knezske louky 2151/18, 130 00 Praha 3, Czech Republic  
Manufacturer: Y Soft Corporation, a.s.  
U Knezske louky 2151/18, 130 00 Praha 3, Czech Republic

Test Standards: 47 CFR Part 15 Subpart C

Test Date(s): July 05, 2010 – July 15, 2010

Test Result: PASS

### \* We Hereby Certify That:

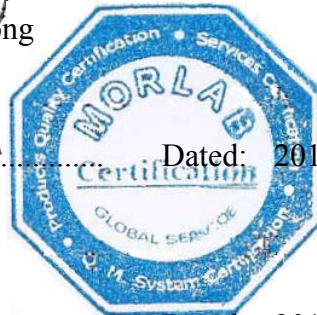
The equipment under test was tested by Shenzhen Electronic Product Quality Testing Center Morlab Laboratory. The test data, data evaluation, test procedures and equipment configurations shown in this report were made in accordance with the requirement of related FCC rules.

The test results of this report only apply for the tested sample equipment identified above. The test report shall be invalid without all the signatures of the test engineer, the reviewer and the approver.

Tested by: Huang Yunlong Dated: 2010-07-21  
Huang Yunlong

Reviewed by: Zhang Jun Dated: 2010-07-21  
Zhang Jun

Approved by: Wei Bei Dated: 2010-07-21  
Wei Bei





## 2. GENERAL INFORMATION

### 2.1 EUT Description

EUT Type .....: SafeQ Terminal Professional  
(Terminal with Motorola Indala Wiegand 26bit card reader)  
Model Name .....: YP04020 001 - Terminal Pro MotInd W26  
Serial No. ....: (n.a, marked #1 by test site)  
Modulation Type.....: ASK  
Frequency .....: 125KHz  
Power Supply .....: AC Adapter  
Brand Name: /  
Model Name: SYS1357-2412  
Serial No.: (n.a, marked #3 by test site)  
Rated Input: ~ 100-240V, 1.0A MAX, 50/60Hz  
Rated Output: = 12V, 2.0A  
Output Power: 24W MAX

*Note 1:* The EUT is a RFID 125KHz device. The RFID module is tested with maximum rated TX power.

*Note 2:* For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

## 2.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart C (RFID) for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 15 (10-1-05 Edition)	Radio Frequency Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Result
1	15.209	Radiated Emissions	PASS
2	15.207	AC powerline conducted emissions	PASS

**PASS** The EUT complies with the essential requirements in the standard.

**FAIL** The EUT does not comply with the essential requirements in the standard.

**(n.a)** The test was not performed.

## 2.3 Facilities and Accreditations

### 2.3.1 Facilities

Shenzhen Electronic Product Quality Testing Center Morlab Laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L1659.

All measurement facilities used to collect the measurement data are located at Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen 518055 CHINA. The test site is constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22; the FCC registration number is 741109.

### 2.3.2 Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	20 - 25
Relative Humidity (%):	40 - 60
Atmospheric Pressure (kPa):	96



### 3. 47 CFR PART 15C REQUIREMENTS

#### 3.1 Radiated Emission

##### 3.1.1 Requirement

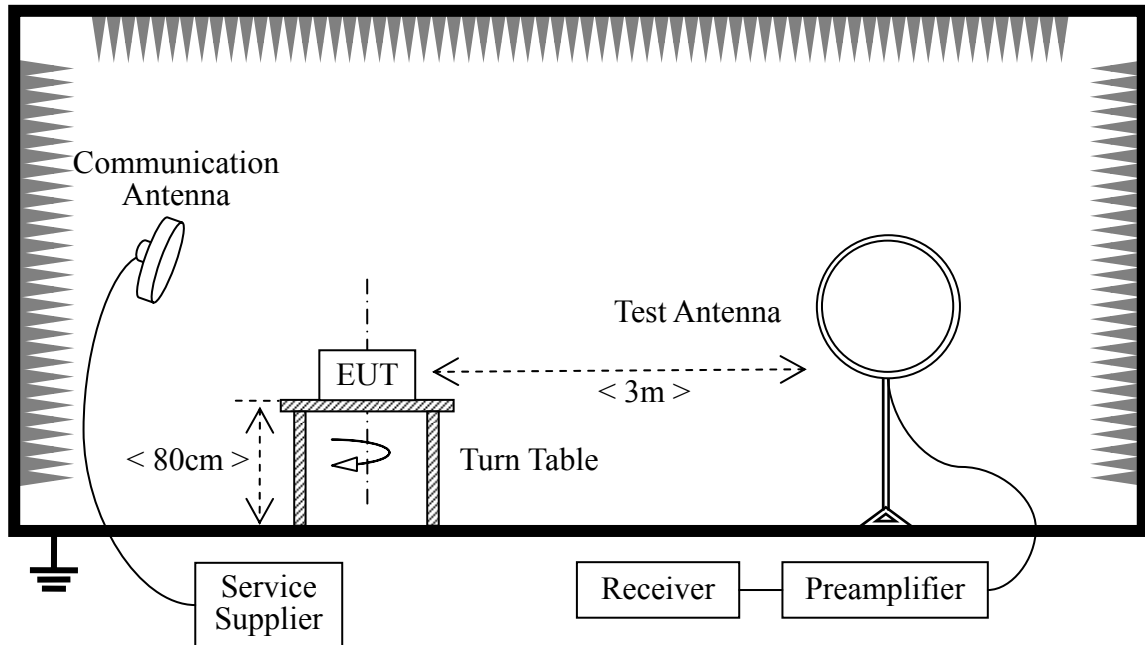
According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength(microvolt/meter)	Distance(meter)
0.009-0.490	2400/F(KHz)	300
0.490-1.705	24000/F(KHz)	3
1.705-30	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

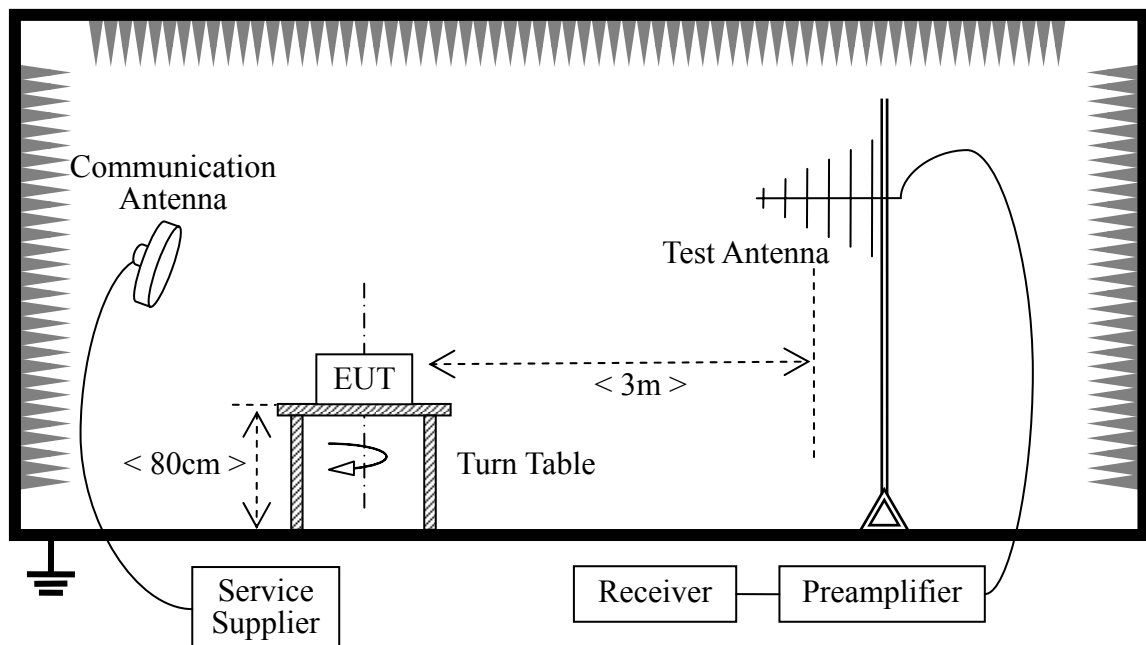
\* dBuV/m=20\*log(uV/m) \* Distance factor=40dB / decade(15.31(f))

### 3.1.2 Test Description

#### A. Test Setup:



Radiation measurement from 9KHz to 30MHz



Radiation measurement from 30MHz to 1000MHz



The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANSI C63.4 (2003). The EUT was set-up on insulator 80cm above the Ground Plane. The set-up and test methods were according to ANSI C63.4.

For the Test Antenna: In the all frequency range, Loop Test Antenna (9KHz to 30MHz) and Bi-Log Test Antenna (above 30MHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength, the azimuth range of turntable was 0° to 360°, the receive antenna has two polarizations horizontal and vertical.

**B. Equipments List:**

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	ESCI3	100666	2009.10	1year
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2009.10	2year
Test Antenna - Bi-Log	Schwarzbeck	HL562	100385	2009.10	1year
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384	2009.10	1year
Loop antenna	R&S	HFH2-Z2	A0304224	2009.10	1year

### 3.1.3 Test results:

Radiation measurement result from 9KHz to 30MHz:

Frequency (kHz)	Reading (dB $\mu$ V)	Position	Height (m)	Correction Factor (dB)	Result Value(Qeas-Peak)		
					Limit (dB $\mu$ V/m)	Result (dB $\mu$ V/m)	Margin (dB)
125.14	56.75	X	1.0	31.20	105.6	87.95	-17.65
125.56	50.26	Y	1.0	31.20	105.6	81.46	-24.14
125.32	46.88	Z	1.0	31.20	105.6	78.08	-27.52
other	-	-	-	-	-	-	-

\*X:X-axis,Y:Y-axis,Z:Z-axis.

\*Below 30 MHz was applied Peak Detector.

\*There is no found Restricted bands.

\*The 300m limit was converted to 3m Limit using square factor(x) as it was found by measurements as follows;

$$3 \text{ m Limit (dBuV/m)} = 20\log(2400/F(\text{KHz})) + 40\log(300/3) = 20\log(2400/125) + 40\log(300/3)$$

\*" - " means background nosie.

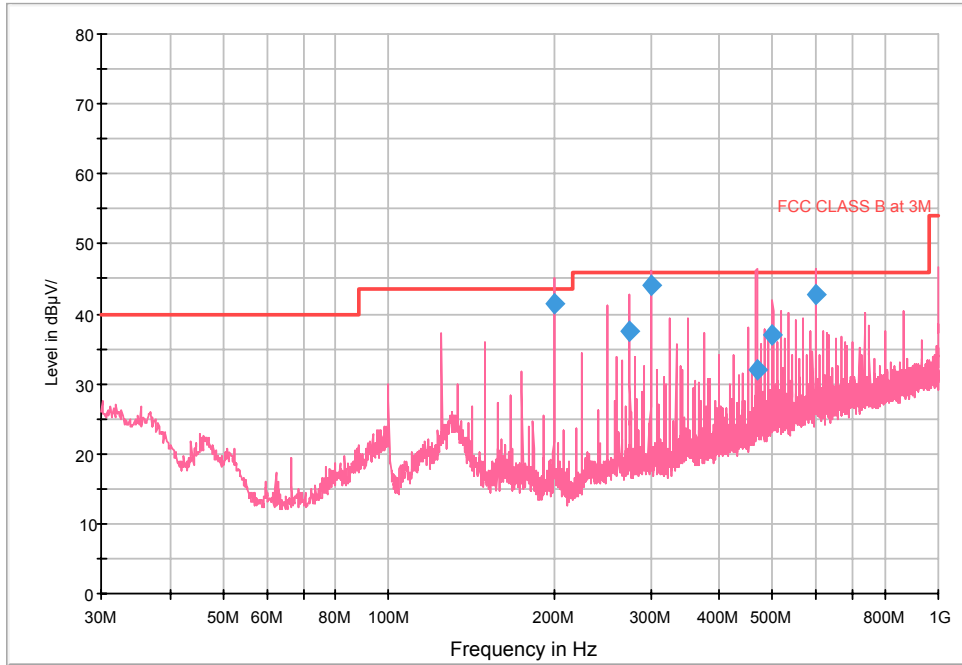
Radiation measurement result from 30MHz to 1000MHz:

Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)	Comment
199.992500	41.4	100.0	V	118.0	10.0	2.1	43.5	
275.046250	37.4	100.0	V	149.0	13.4	8.6	46.0	
300.023750	44.0	100.0	V	180.0	14.4	2.0	46.0	
466.863750	32.0	100.0	V	9.0	19.4	14.0	46.0	
500.086250	36.9	100.0	V	0.0	20.1	9.1	46.0	
600.117500	42.7	100.0	V	107.0	22.1	3.3	46.0	

Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V/m)	Comment
199.992500	39.5	100.0	H	129.0	10.0	4.0	43.5	
249.947500	40.9	100.0	H	171.0	12.4	5.1	46.0	
275.046250	40.2	100.0	H	274.0	13.4	5.8	46.0	
300.023750	43.9	100.0	H	191.0	14.4	2.1	46.0	
466.863750	32.6	100.0	H	9.0	19.4	13.4	46.0	
500.086250	40.7	100.0	H	222.0	20.1	5.3	46.0	

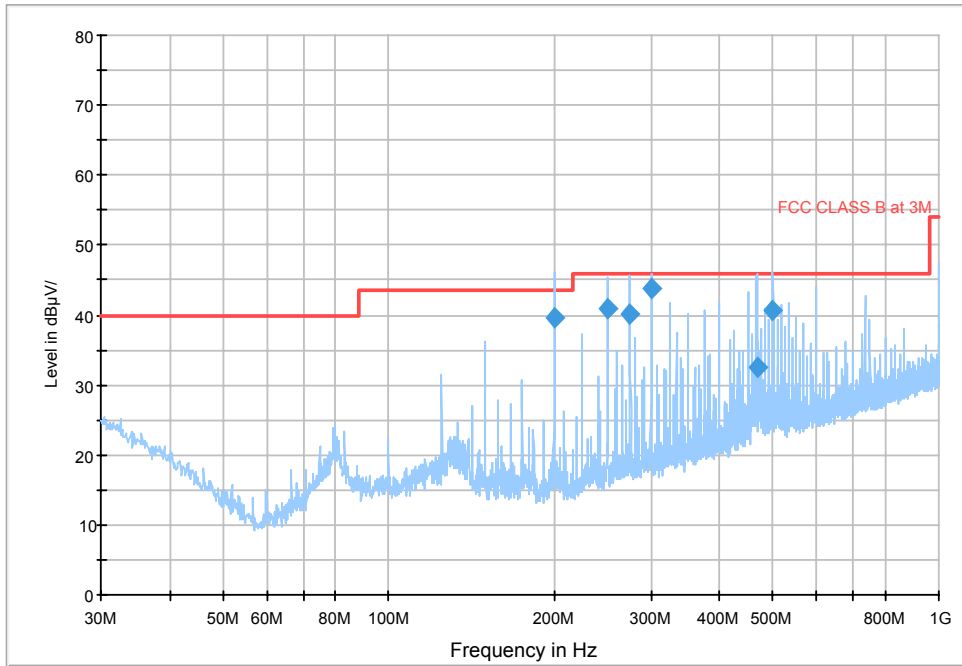
Test Plots:

MORLAB-RE\_HL562 Auto-FCC limit Test



(Test Antenna Vertical)

MORLAB-RE\_HL562 Auto-FCC limit Test



(Test Antenna Horizontal)

## 3.2 Conducted Emission

### 3.2.1 Requirement

According to FCC section 15.207, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50 $\mu$ H/50 $\Omega$  line impedance stabilization network (LISN).

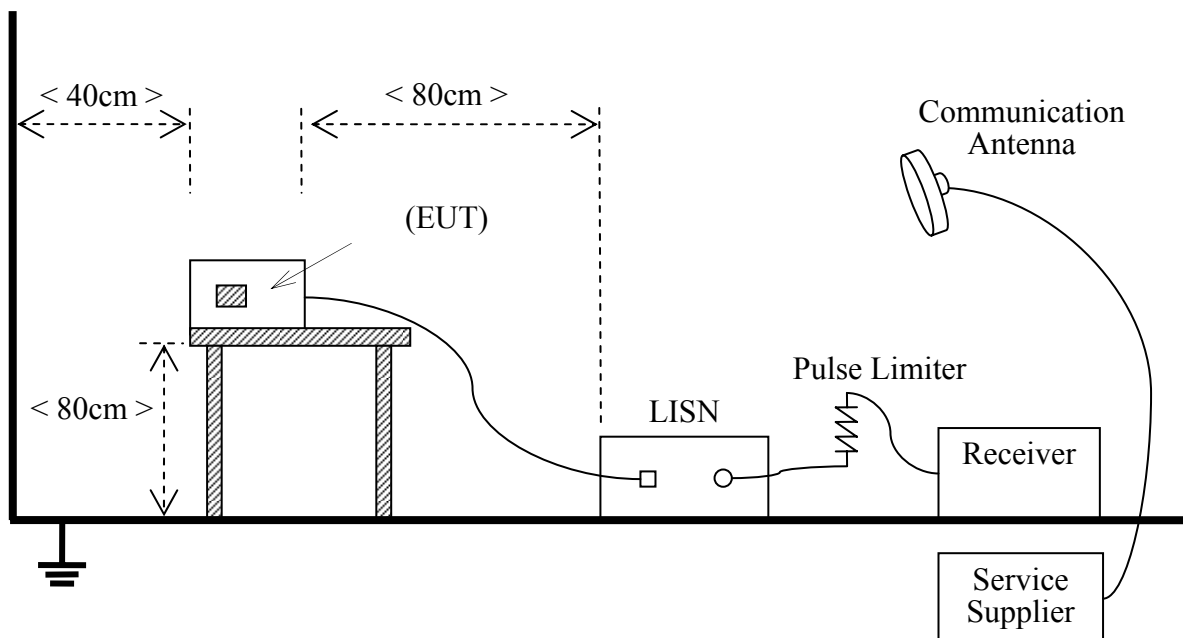
Frequency range (MHz)	Conducted Limit (dB $\mu$ V)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 30	60	50

NOTE:

- The lower limit shall apply at the band edges.
- The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

### 3.2.2 Test Description

#### A. Test Setup:



The Table-top EUT was placed upon a non-metallic table 0.8m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference Ground Plane. EUT was 80cm from LISN. The set-up and test methods were according to ANSI C63.4:2003

**B. Equipments List:**

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Receiver	Rohde&Schwarz	ESCI3	100666	2009.10	1year
LISN	Rohde&Schwarz	ENV216	812744	2009.10	1year
Personal Computer	Lenovo	(n.a.)	(n.a.)	(n.a.)	(n.a.)

**3.2.3 Test Result**

The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.

**\*L1 line AVG Result:**

Frequency (MHz)	Average (dB $\mu$ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)	Comment
0.299250	23.3	1000.000	9.000	Off	L1	9.7	26.7	50.0	
0.370144	24.9	1000.000	9.000	Off	L1	9.7	23.4	48.3	
0.459694	24.6	1000.000	9.000	Off	L1	9.7	22.0	46.6	
0.467156	26.3	1000.000	9.000	Off	L1	9.7	20.2	46.5	
0.497006	20.9	1000.000	9.000	Off	L1	9.7	25.1	46.0	
23.981494	24.1	1000.000	9.000	Off	L1	10.5	25.9	50.0	

**\*L1 line QP Result:**

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)	Comment
0.299250	36.3	1000.000	9.000	Off	L1	9.7	23.8	60.1	
0.340294	32.3	1000.000	9.000	Off	L1	9.7	26.7	59.0	
0.377606	36.1	1000.000	9.000	Off	L1	9.7	22.1	58.2	
0.452231	33.6	1000.000	9.000	Off	L1	9.7	23.2	56.8	
0.459694	38.0	1000.000	9.000	Off	L1	9.7	18.6	56.6	
0.467156	38.1	1000.000	9.000	Off	L1	9.7	18.4	56.5	



## \*N line AVG Result:

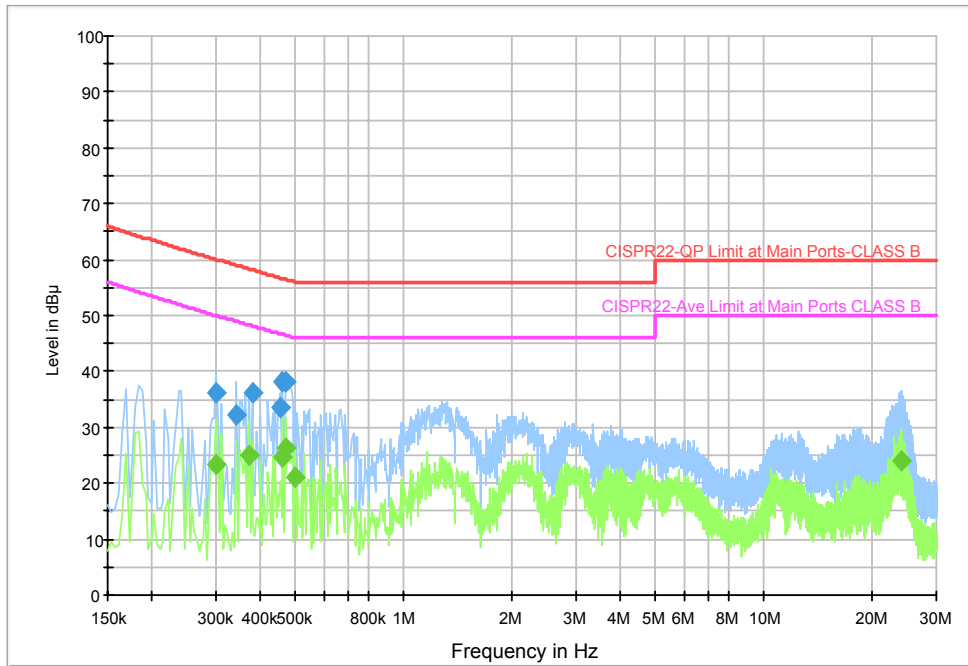
Frequency (MHz)	Average (dB $\mu$ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)	Comment
0.187312	26.7	1000.000	9.000	Off	N	9.6	27.3	54.0	
0.455962	21.0	1000.000	9.000	Off	N	9.7	25.7	46.7	
0.467156	26.0	1000.000	9.000	Off	N	9.7	20.5	46.5	
0.485812	22.9	1000.000	9.000	Off	N	9.7	23.3	46.2	
3.955875	21.7	1000.000	9.000	Off	N	9.9	24.3	46.0	
4.746900	22.2	1000.000	9.000	Off	N	9.9	23.8	46.0	

## \*N line QP Result:

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)	Comment
0.168656	40.1	1000.000	9.000	Off	N	9.7	24.9	65.0	
0.362681	34.5	1000.000	9.000	Off	N	9.7	24.0	58.5	
0.437306	34.8	1000.000	9.000	Off	N	9.7	22.2	57.0	
0.444769	35.5	1000.000	9.000	Off	N	9.7	21.4	56.9	
0.455962	37.8	1000.000	9.000	Off	N	9.7	18.9	56.7	
0.467156	37.8	1000.000	9.000	Off	N	9.7	18.7	56.5	

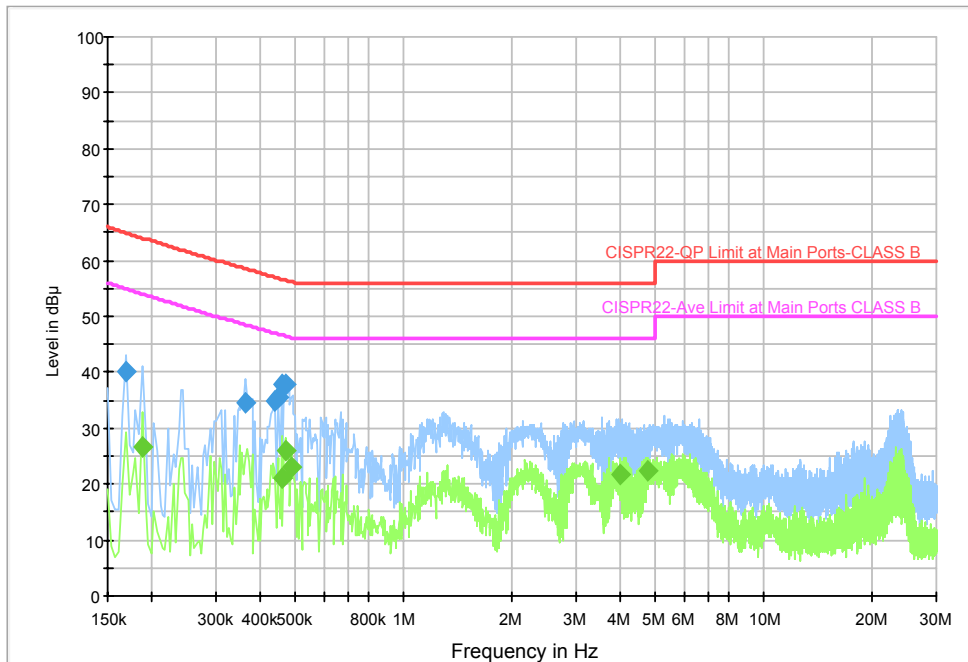
Test Plots:

MORLAB-CE-ENV216 Auto Test-L



(Plot A: L Phase)

MORLAB-CE-ENV216 Auto Test-N



(Plot B: N Phase)

\*\* END OF REPORT \*\*