



FCC Part 15, Subpart C, Section 15.223
Test Report

On

Antenna Pedestals
FCC ID: DO4NEOPS

Customer Name: Checkpoint Systems, Inc.

Customer P.O.: 1101154280

Date of Report: October 1, 2020

Test Report No.: R-3296P-2

Test Start Date: August 4, 2020

Test Finish Date: August 24, 2020

Test Technician: S. Charles, M. Nowak

Approved By: D. Rybicki

Report Prepared By: B. Bolton

Our letters, procedures and reports are for the exclusive use of the customer to whom they are addressed and their communication or the use of the name of Retlif Testing Laboratories must receive our prior written approval. Our letters, procedures and reports apply only to the sample tested and are not necessarily indicative of the qualities of apparently identical or similar products. The letters, procedures and reports and the name of Retlif Testing Laboratories or insignia are not to be used under any circumstances in advertising to the general public. This test report shall not be reproduced, except in full, without the written approval of Retlif Testing Laboratories.



40 YEARS OF TESTING EXCELLENCE

Table of Contents

Technical Information.....	4
Certification and Signatures.....	6
Requirements and Test Results.....	7
FCC Section 15.203 – Antenna Requirements.....	7
FCC Section 15.207(a) – Conducted Emissions.....	7
FCC Section 15.223 (a), 6dB and 99% Occupied Bandwidth.....	7
FCC Section 15.223 (a), Fundamental Field Strength.....	8
FCC Section 15.223 (b), Field Strength of Harmonics and Spurious outside of band	8
Equipment Lists	10
Test Data, Conducted Emissions.....	12
Test Data, Occupied Bandwidth.....	15
Test Data, Fundamental Field Strength	17
Test Data, Harmonics and Spurious Emissions.....	23



Retlif Testing Laboratories

Report No. R-3296P-2

Technical Information

Report Number: R-3296P-2

Customer: Checkpoint Systems, Inc.

Address: 101 Wolf Drive
Thorofare, New Jersey 08086

Manufacturer: Checkpoint Systems, Inc.

Manufacturer Address: 101 Wolf Drive
Thorofare, New Jersey 08086

Test Sample: Antenna Pedestals

Model Numbers Tested: Primary Pedestal: NP10 PAB
Secondary Pedestal: NP 10 SAB

FCC ID: DO4NEOPS

Power Requirements: 120 VAC, 60 Hz

Frequency of Operation: 7.975, 8.125, 8.275, and 8.425

The Antenna Pedestals tested were provided as worst case in accordance with Checkpoint Systems, Inc. The Neo family of PAB and SAB consist of the following versions:

- NP10 PAB W/HUB
- NP10 SAB
- NP20 PAB W/HUB
- NP20 SAB
- NG10 PAB W/HUB
- NG10 SAB

Test Specification:

FCC Rules and Regulations Part 15, Subpart C, Section 15.223

Test Procedure:

ANSI C63.4:2014
ANSI C63.10:2013

Test Facility:

Retlif Testing Laboratories
3131 Detwiler Road
Harleysville, PA 19438

FCC Accreditation Designation Number: US2321



Retlif Testing Laboratories

Report No. R-3296P-2

Tests Performed

The test methods performed on the Antenna Pedestals are shown in Table 1 below:

Table 1 – Test Methods

FCC Part 15, Subpart C	Test Method
15.203	Antenna Requirements
15.207 (a)	Conducted Emissions
15.223 (a)	6 dB and 99% Bandwidth
15.223 (a)	Fundamental Field Strength
15.223 (b)	Field Strength of Harmonics and Spurious outside of band

General Test Requirements

1. All radiated emissions measurements were performed on an Open Area Test Site (OATS), listed with the FCC, in accordance with FCC Section 15.31(d).
2. All measurements were performed at test distance specified on each data sheet.
3. The EUT was rotated throughout 360 degrees for all radiated emissions measurements as specified in FCC Section 15.31(f)(5).
4. All readily accessible EUT controls were adjusted in such a manner as to maximize the level of emissions in accordance with FCC Section 15.31(g).
5. In accordance with Checkpoint Systems, Inc. appropriate accessories were attached to all EUT ports during the performance of radiated emissions measurements as required by FCC Section 15.31(i).
6. The frequency spectrum was investigated from the lowest frequency generated in the device up to at least the 10th harmonic of the highest fundamental frequency in accordance with FCC Section 15.33(a)(1).
7. All measurements were taken with a peak detector function as specified in FCC Section 15.35(a). The duty cycle, calculated in accordance with FCC Section 15.35(c), was applied to the peak readings in order to obtain the average value of emissions. The peak value of emissions was verified to meet the 20 dB requirement of FCC Section 15.35(b).

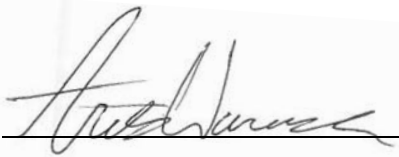


Retlif Testing Laboratories

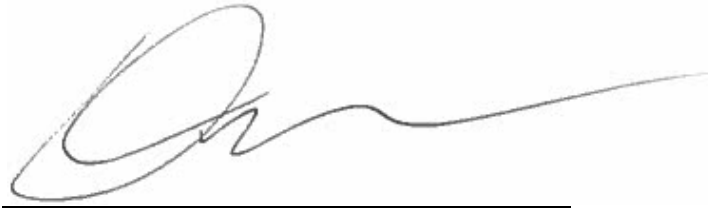
Report No. R-3296P-2

Certification and Signatures

We certify that this report is a true representation of the results obtained from the tests of the equipment stated. We further certify that the measurements shown in this report were made in accordance with the procedures indicated and vouch for the qualifications of all Retlif Testing Laboratories personnel taking them.



Arik L. Warwick
EMC Test Engineer



David M. Rybicki
Laboratory Supervisor

Non-Warranty Provision

The testing services have been performed, findings obtained and reports prepared in accordance with generally accepted laboratory principles and practices. This warranty is in lieu of all others, either expressed or implied.

Non-Endorsement

This test report contains only findings and results arrived at after employing the specific test procedures and standards listed herein. It is not intended to constitute a recommendation, endorsement or certification of the product or material tested. This test report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.



Retlif Testing Laboratories

Report No. R-3296P-2

Requirements and Test Results

FCC Section 15.203 – Antenna Requirements

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

- Results:
In accordance with Checkpoint Systems, Inc the antenna is permanently installed.

FCC Section 15.207(a) – Conducted Emissions

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 or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits shown in Table 2, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of the paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Table 2 - Conducted Emission Limits

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-Peak	Average
0.15 to 0.5	66 to 56*	56 to 46*
0.5 to 5	56	46
5 to 30	60	50

*Decreases due to logarithm of the frequency

- Results:
The conducted emissions observed did not exceed the limits specified in Table 2.

FCC Section 15.223 (a), 6dB and 99% Occupied Bandwidth

If the bandwidth of the emission is less than 10% of the center frequency, the field strength shall not exceed 15 microvolts/meter or (the bandwidth of the device in kHz) divided by (the center frequency of the device in MHz) microvolts/meter at a distance of 30 meters, whichever is the higher level. For the purposes of this section, bandwidth is determined at the points 6 dB down from the modulated carrier.

- Results:

The 6dB bandwidth of the device was 760.00 kHz



Retlif Testing Laboratories

Report No. R-3296P-2

Requirements and Test Results (con't)

FCC Section 15.223 (a), Fundamental Field Strength

The field strength of any emission within the band 1.705-10.0 MHz shall not exceed 100 microvolts/meter at a distance of 30 meters. The emission limits in this paragraph are based on measurement instrumentation employing an average detector. The provisions in §15.35(b) for limiting peak emissions apply.

- Results:

The device was operated at a frequency of 8.2 MHz. The maximum Peak reading was 817.72 $\mu\text{V/m}$. The maximum average reading was 22.12 $\mu\text{V/m}$.

Table 3 - Field Strength of Emissions Limits

Fundamental Frequency	Peak Field Strength Limit	Average Field Strength Limit
8.2 MHz	1000 $\mu\text{V/m}$	100 $\mu\text{V/m}$

FCC Section 15.223 (b), Field Strength of Harmonics and Spurious outside of band

Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in Table 4.

Table 4 - Radiated Emission Limits

Frequency of Emission (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 to 88	100	3
88 to 216	150	3
216 to 960	200	3
Above 960	500	3

- Results:

The field strength of spurious radiated emissions did not exceed the limits specified in Table 4.



Retlif Testing Laboratories

Report No. R-3296P-2

General Requirements FCC

Spectrum Analyzer Desensitization Considerations

Due to the nature of the emissions being measured, a pulse desensitization calculation was utilized in order to provide accurate peak measurements. The following formula was utilized:

$$\tau_{eff} = \text{Minimum Pulse Width} = 4\mu\text{S}$$

$$K = 1.5$$

$$B = \text{Bandwidth utilized for measurement} = 10 \text{ kHz}$$

$$\text{Pulse Desensitization Factor (dB)} = 20 \log_{10} \tau_{eff} \times K \times B$$

$$\text{Pulse Desensitization Factor (dB)} = 20 \log_{10} 4\mu\text{S} \times 1.5 \times 10\text{kHz}$$

$$\text{Pulse Desensitization Factor (dB)} = 24.437$$

Duty Cycle Correction for Average Reading

In accordance with ANSI C63.10 Paragraph 7.5, the below equation was utilized in order to determine the Average value of a pulsed emission:

$$\text{Transmitter On Time} = \underline{0.256} \text{ milliseconds (maximum per cycle)}$$

$$\text{Transmitter Cycle Time} = \underline{9.64} \text{ milliseconds (100 ms maximum)}$$

$$\text{Transmitter Duty Cycle} = \underline{2.66} \%$$

CALCULATION

$$64 \text{ pulses of } 4 \mu\text{s} = \underline{256} \mu\text{s}$$

$$\text{Duty Cycle } (0.256/9.64) = \underline{2.66} \%$$

$$\text{Correction Factor} = 20 \log \underline{(0.0266)} = \underline{-31.52} \text{ dB}$$



Retlif Testing Laboratories

Report No. R-3296P-2

Equipment Lists

FCC Part 15, Subpart C, Section 15.207 (a) Conducted Emissions

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
8079	ROHDE & SCHWARZ	RECEIVER, EMI	9 kHz - 30 MHz	ESH3	6/24/2020	6/30/2021
8366A	RETLIF	CABLE, COAXIAL	10 KHz - 1 GHz	20' BNC	5/14/2020	5/31/2021
8496	NARDA MICROWAVE	ATTENUATOR, COAXIAL	10 dB, DC - 11 GHz, 20 W	768-10	6/2/2020	6/30/2021
8619	OMEGA	HYGROMETER	-20 to 70 deg. C, 0-99% RH	OM-73	3/16/2020	3/31/2021
8633	SOLAR ELECTRONICS	LISN	50 uH, 150 kHz - 30 MHz	21106-50-BP-25-BNC	6/22/2020	6/30/2021
8634	SOLAR ELECTRONICS	LISN	50 uH, 150 kHz - 30 MHz	21106-50-BP-25-BNC	6/22/2020	6/30/2021
8750	RIGOL	ANALYZER, SPECTRUM	9 kHz - 3.2 GHz	DSA832E	5/18/2020	5/31/2021

FCC Part 15, Subpart C, Section 15.223 (a) Occupied Bandwidth

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
3207	ETS / EMCO	ANTENNA, ACTIVE LOOP	9 kHz - 30 MHz	6502	5/5/2020	5/31/2021
713	ROHDE & SCHWARZ	RECEIVER, EMI	20 Hz - 26.5 GHz	ESIB26	3/19/2020	3/31/2021
8575	RIGOL	ANALYZER, SPECTRUM	9 kHz - 1.5 GHz	DSA815-TG	1/9/2020	1/31/2021
8668	DIGI-SENSE	HYGROMETER	0 - 50 deg. c, 10 - 90 % RH	20250-31	3/16/2020	9/30/2020

FCC Part 15, Subpart C, Section 15.223 (a) Fundamental Field Strength

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
3207	ETS / EMCO	ANTENNA, ACTIVE LOOP	9 kHz - 30 MHz	6502	5/5/2020	5/31/2021
7016	AGILENT / HP	ANALYZER, SPECTRUM	9 KHz - 1.8 GHz	8591EM	6/10/2020	6/30/2021
8300	RETLIF	OPEN AREA TEST SITE, ATTENUATION	3/10 Meter OATS	RPA	5/7/2020	5/31/2022
8300C	UNKNOWN	CABLE, COAXIAL	3/10 METER	3 METER CABLE	2/5/2020	8/31/2020
8388	TEKTRONIX	OSCILLOSCOPE	350 MHz	DPO 4032	7/10/2020	7/31/2021
8644	AGILENT / HP	ANALYZER, SPECTRUM	100 Hz - 22 GHz	85662A	9/23/2019	9/30/2020
8644A	AGILENT / HP	ANALYZER, SPECTRUM	100 Hz - 22.5 GHz	8566B	9/23/2019	9/30/2020
8644B	AGILENT / HP	ANALYZER, RF PRESELECTOR	20 Hz - 2 GHz	85685A	9/23/2019	9/30/2020
8668	DIGI-SENSE	HYGROMETER	0 - 50 deg. c, 10 - 90 % RH	20250-31	3/16/2020	9/30/2020



Retlif Testing Laboratories

Report No. R-3296P-2

FCC Part 15, Subpart C, Section 15.223 (b)
Field Strength of Harmonics and Spurious outside of band

EN	Manufacturer	Description	Range	Model No.	Cal Date	Due Date
127A	ETS / EMCO	ANTENNA, BICONICAL	20 - 200 MHz	3104	5/6/2019	11/30/2020
3207	ETS / EMCO	ANTENNA, ACTIVE LOOP	9 kHz - 30 MHz	6502	5/5/2020	5/31/2021
8016	ETS / EMCO	ANTENNA, LOG PERIODIC	200 MHz - 1 GHz	3146	9/9/2019	3/31/2021
8079	ROHDE & SCHWARZ	RECEIVER, EMI	9 kHz - 30 MHz	ESH3	6/24/2020	6/30/2021
8080	ROHDE & SCHWARZ	RECEIVER, EMI	20 - 1300 MHz	354-3000.56ESVP	11/5/2019	11/30/2020
8300	RETLIF	OPEN AREA TEST SITE, ATTENUATION	3/10 Meter OATS	RPA	5/7/2020	5/31/2022
8300C	UNKNOWN	CABLE, COAXIAL	3/10 METER	3 METER CABLE	2/5/2020	8/31/2020
8644	AGILENT / HP	ANALYZER, SPECTRUM	100 Hz - 22 GHz	85662A	9/23/2019	9/30/2020
8644A	AGILENT / HP	ANALYZER, SPECTRUM	100 Hz - 22.5 GHz	8566B	9/23/2019	9/30/2020
8644B	AGILENT / HP	ANALYZER, RF PRESELECTOR	20 Hz - 2 GHz	85685A	9/23/2019	9/30/2020
8668	DIGI-SENSE	HYGROMETER	0 - 50 deg. c, 10 - 90 % RH	20250-31	3/16/2020	9/30/2020



Retlif Testing Laboratories

Report No. R-3296P-2

FCC Part 15, Subpart C, Section 15.207
Test Data, Conducted Emissions
150 kHz to 30 MHz



Retlif Testing Laboratories

Report No. R-3296P-2

EMISSIONS TEST DATA SHEET

Test Specification:	FCC Part 15, Subpart C, Section 15.207 (a)
Method:	ANSI C63.10:2013, Section 6.2, AC power-line conducted emission measurements
Job Number/Customer:	R-3296P-2, Checkpoint Systems, Inc
Test Sample:	Antenna Pedestal
Model Number:	NP10 PAB W / Hub, NP10 SAB
Serial Number:	1003464400W1490001
Operating Mode:	ST BT, LM Wi-Fi, Tx=31, Rx=31, I/O Cables on GPIO's, Ethernet, LT/SND Cable, RF Coax Cable
Technician:	S. Charles
Date(s):	8/4/20
Temperature:	24.6 °C
Relative Humidity:	42.1 %
Lead Tested:	120 VAC, 60 Hz, Hot

The frequency range was scanned from 0.15 MHz to 30 MHz.

The six highest emissions relative to the limit are presented.

The emissions observed from the EUT do not exceed the specified limits.

Frequency	Detector	Meter Reading	Total Correction Factor	Corrected Reading	Limit	Margin
MHz	–	dBµV	dB	dBµV	dBµV	dB
0.1822	Peak	34.8	10.1	44.9*	–	–
0.1822	Quasi-Peak	29.1	10.1	39.2	64.4	25.2
0.1822	Average	22.9	10.1	33.0	54.4	21.4
0.4217	Peak	31.4	10.1	41.5*	–	–
0.4217	Quasi-Peak	26.5	10.1	36.6	57.4	20.8
0.4217	Average	25.2	10.1	35.3	47.4	12.1
0.4826	Peak	31.3	10.1	41.4*	–	–
0.4826	Quasi-Peak	26.4	10.1	36.5	56.3	19.8
0.4826	Average	20.9	10.1	31.0	46.3	15.3
5.0204	Peak	43.8	10.3	54.1*	–	–
5.0204	Quasi-Peak	38.7	10.3	49.0	60.0	11.0
5.0204	Average	28.9	10.3	39.2	50.0	10.8
6.1839	Peak	35.7	10.3	46.0*	–	–
6.1839	Quasi-Peak	30.5	10.3	40.8	60.0	19.2
6.1839	Average	23.2	10.3	33.5	50.0	16.5
8.0447	Peak	54.5	10.3	64.8*	–	–
8.0447	Quasi-Peak	48.4	10.3	58.7	60.0	1.3
8.0447	Average	37.0	10.3	47.3	50.0	2.7

* Peak measurements are recorded for informational purposes only.



Retlif Testing Laboratories

Report No. R-3296P-2

EMISSIONS TEST DATA SHEET

Test Specification:	FCC Part 15, Subpart C, Section 15.207 (a)
Method:	ANSI C63.10:2013, Section 6.2, AC power-line conducted emission measurements
Job Number/Customer:	R-3296P-2, Checkpoint Systems, Inc
Test Sample:	Antenna Pedestal
Model Number:	NP10 PAB W / Hub, NP10 SAB
Part Number:	1003464400W1490001
Operating Mode:	ST BT, LM Wi-Fi, Tx=31, Rx=31, I/O Cables on GPIO's, Ethernet, LT/SND Cable, RF Coax Cable
Technician:	S. Charles
Date(s):	8/4/20
Temperature:	24.6 °C
Relative Humidity:	42.1 %
Lead Tested:	120 VAC, 60 Hz, Neutral
The frequency range was scanned from 0.15 MHz to 30 MHz. The six highest emissions relative to the limit are presented. The emissions observed from the EUT do not exceed the specified limits.	

Frequency	Detector	Meter Reading	Total Correction Factor	Corrected Reading	Limit	Margin
MHz	—	dBµV	dB	dBµV	dBµV	dB
0.1829	Peak	33.2	10.1	43.3*	—	—
0.1829	Quasi-Peak	27.8	10.1	37.9	64.4	26.5
0.1829	Average	23.3	10.1	33.4	54.4	21.0
0.2422	Peak	29.8	10.1	39.9*	—	—
0.2422	Quasi-Peak	22.6	10.1	32.7	62.0	29.3
0.2422	Average	18.0	10.1	28.1	52.0	23.9
0.4214	Peak	31.6	10.1	41.7*	—	—
0.4214	Quasi-Peak	27.4	10.1	37.5	57.4	19.9
0.4214	Average	26.1	10.1	36.2	47.4	11.2
0.6017	Peak	30.1	10.1	40.2*	—	—
0.6017	Quasi-Peak	25.6	10.1	35.7	56.0	20.3
0.6017	Average	23.5	10.1	33.6	46.0	12.4
5.0455	Peak	44.2	10.3	54.5*	—	—
5.0455	Quasi-Peak	38.8	10.3	49.1	60.0	10.9
5.0455	Average	30.6	10.3	40.9	50.0	9.1
8.0327	Peak	53.6	10.3	63.9*	—	—
8.0327	Quasi-Peak	49.2	10.3	59.5	60.0	0.5
8.0327	Average	37.5	10.3	47.8	50.0	2.2

* Peak measurements are recorded for informational purposes only.



Retlif Testing Laboratories

Report No. R-3296P-2

FCC Part 15.223
Test Data, Occupied Bandwidth

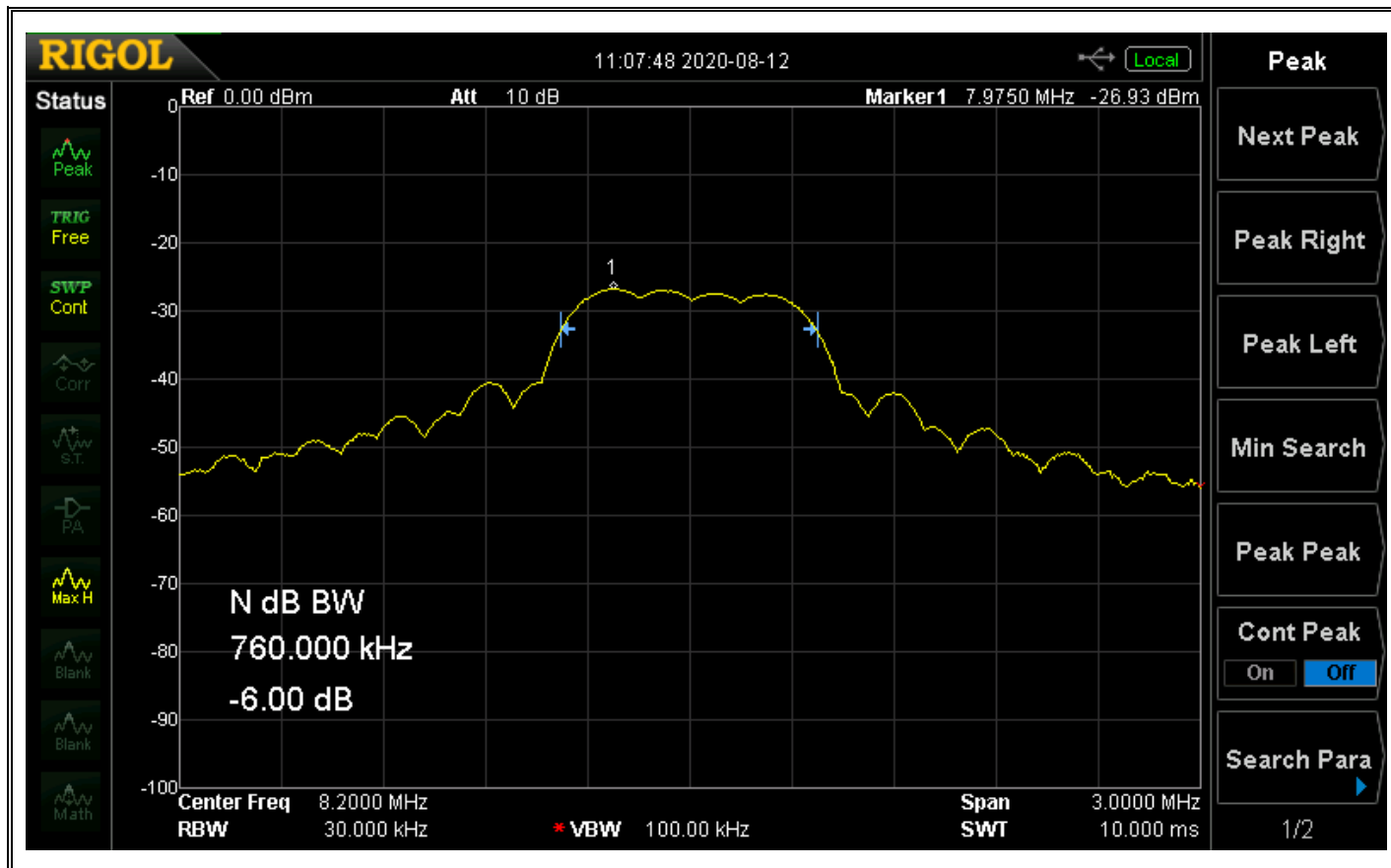


Retlif Testing Laboratories

Report No. R-3296P-2

EMISSIONS TEST DATA SHEET

Test Specification:	Title 47, Chapter I, Subchapter A, Part 15, Subpart B, 15.223
Method:	Occupied Bandwidth, 6dB
Job Number/Customer:	R – 3296P-2 / Checkpoint Systems, Inc
Test Sample:	Antenna Pedestal
Model Number:	NP10 PAB W / Hub, NP10 SAB
Serial Number:	1003464400W1490001
Operating Mode:	ST BT, LM Wi-Fi, Tx=31, Rx=31, I/O Cables on GPIO's, Ethernet, LT/SND Cable, RF Coax Cable
Technician:	D. Rybicki
Date:	08/12/20



Retlif Testing Laboratories

Report No. R-3296P-2

15.223(a)
Test Data, Fundamental Field Strength

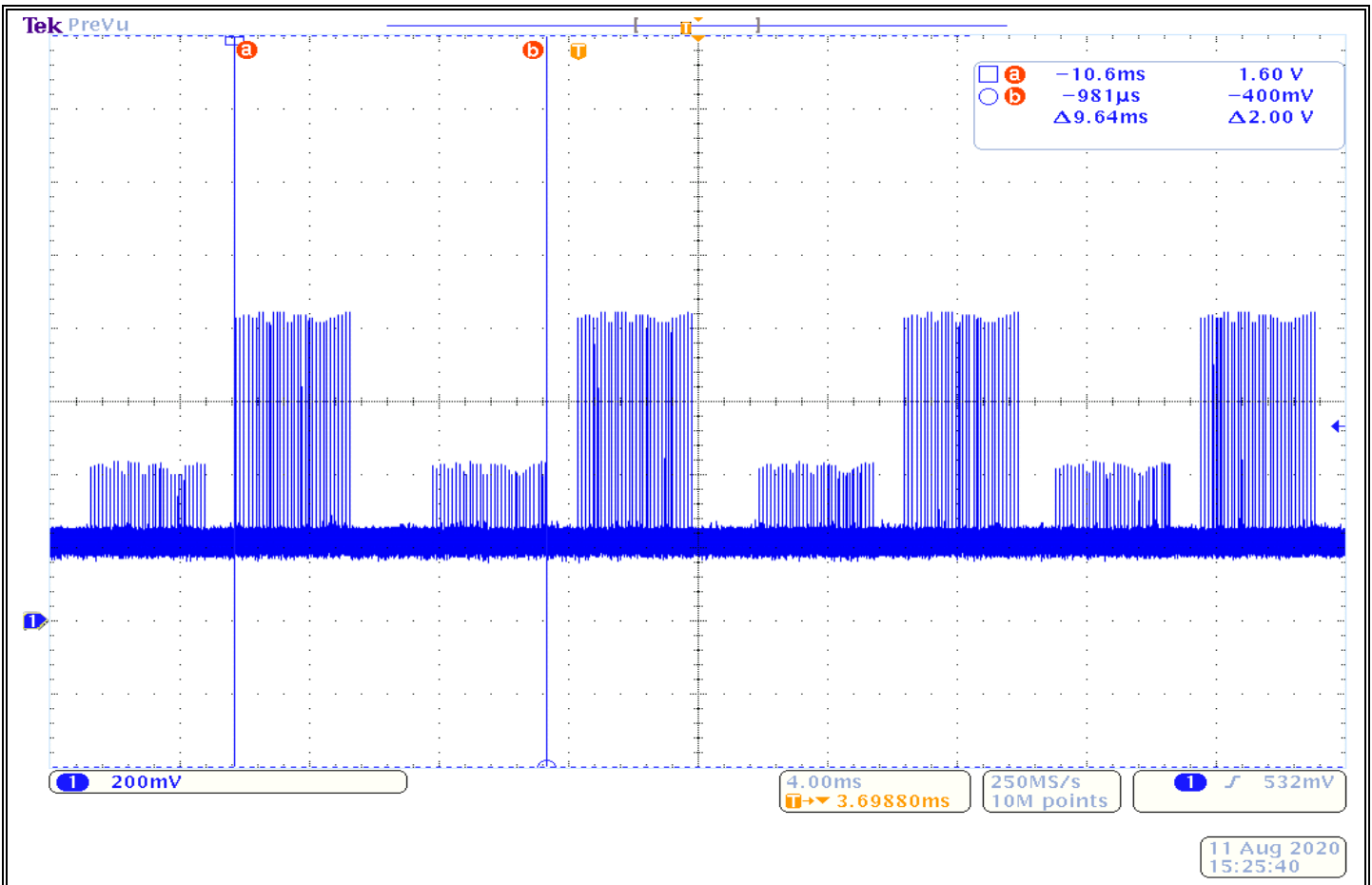


Retlif Testing Laboratories

Report No. R-3296P-2

EMISSIONS TEST DATA SHEET

Test Specification:	FCC Part 15, Subpart B, Section 15.223(a), Fundamental Field Strength
Method:	ANSI C63.10, Section 6.4, Radiated Emission From Unlicensed <30 MHz
Job Number/Customer:	R – 3296P-2 / Checkpoint Systems, Inc
Test Sample:	Antenna Pedestal
Model Number:	NP10 PAB W / Hub, NP10 SAB
Serial Number:	1003464400W1490001
Operating Mode:	ST BT, LM Wi-Fi, Tx=31, Rx=31, I/O Cables on GPIO's, Ethernet, LT/SND Cable, RF Coax Cable
Technician:	D. Rybicki
Date(s):	08/11/20
Temperature:	23.9 °C
Relative Humidity:	46 %
Notes: Total Pulse Time 9.64ms	



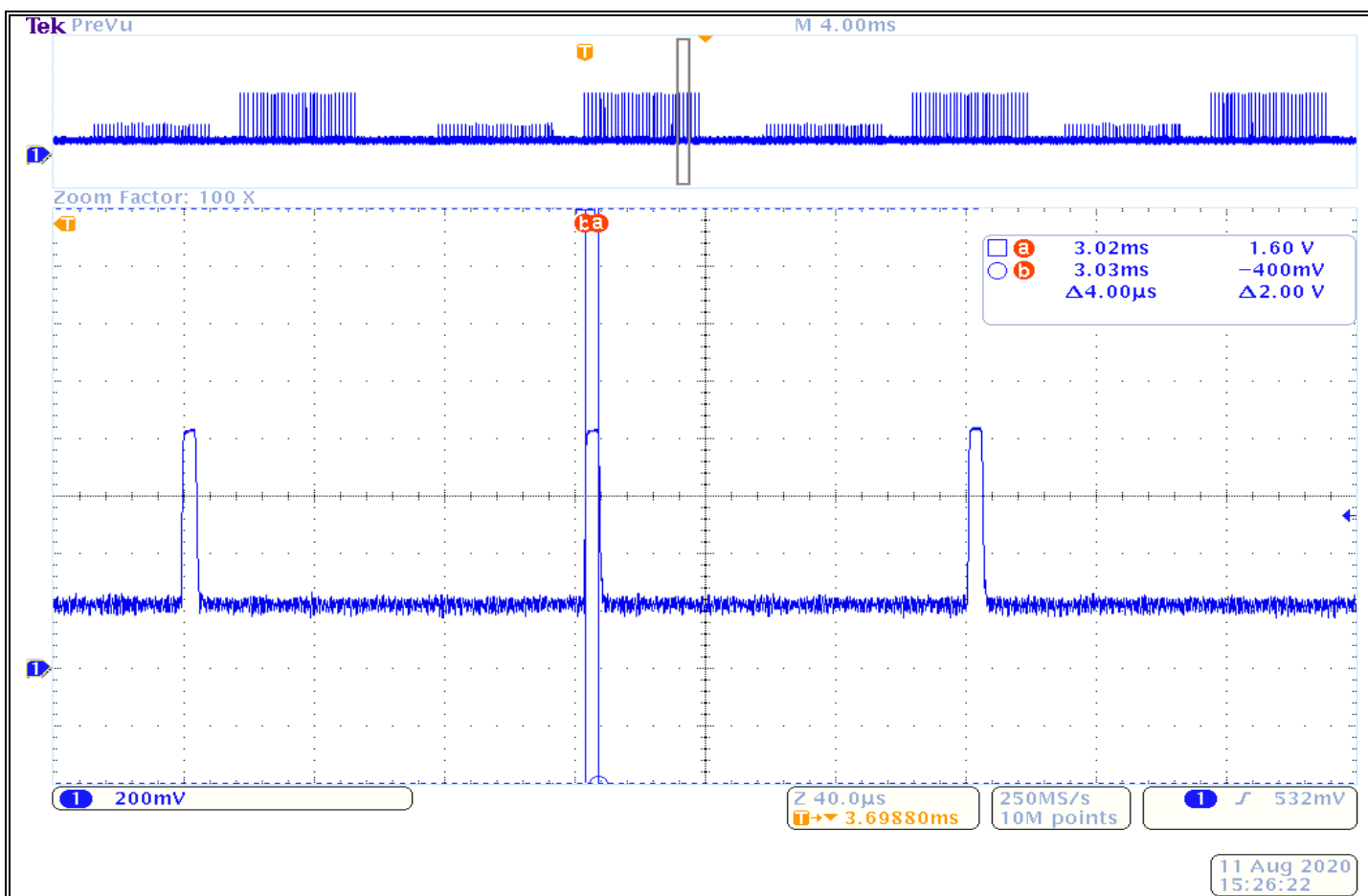
Retlif Testing Laboratories

Report No. R-3296P-2

EMISSIONS TEST DATA SHEET

Test Specification:	FCC Part 15, Subpart B, Section 15.223(a), Fundamental Field Strength
Method:	ANSI C63.10, Section 6.4, Radiated Emission From Unlicensed <30 MHz
Job Number/Customer:	R – 3296P-2 / Checkpoint Systems, Inc
Test Sample:	Antenna Pedestal
Model Number:	NP10 PAB W / Hub, NP10 SAB
Serial Number:	1003464400W1490001
Operating Mode:	ST BT, LM Wi-Fi, Tx=31, Rx=31, I/O Cables on GPIO's, Ethernet, LT/SND Cable, RF Coax Cable
Technician:	D. Rybicki
Date(s):	08/11/20
Temperature:	23.9 °C
Relative Humidity:	46 %

Notes: Total Pulse Duration 4μs

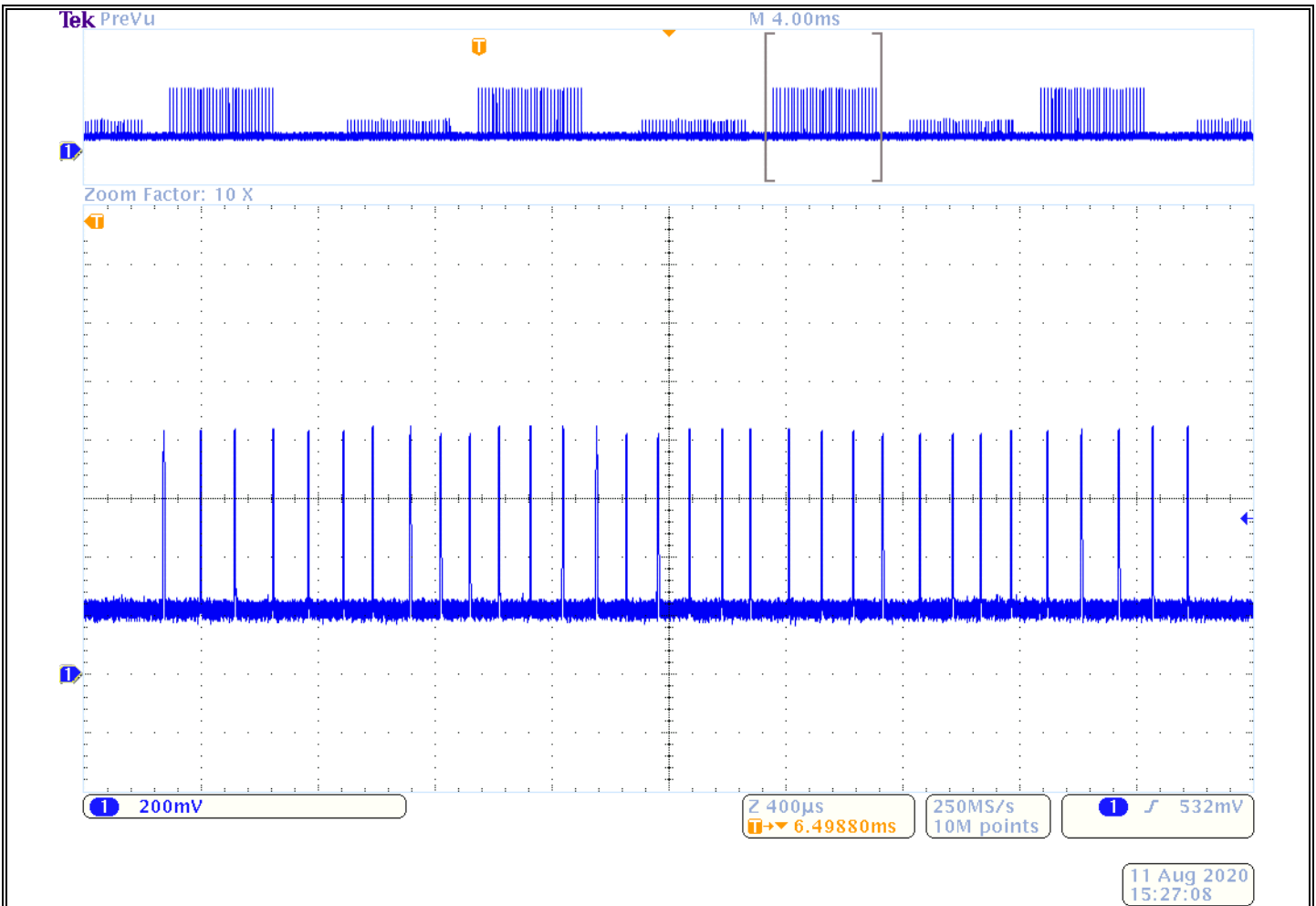


Retlif Testing Laboratories

Report No. R-3296P-2

EMISSIONS TEST DATA SHEET

Test Specification:	FCC Part 15, Subpart B, Section 15.223(a), Fundamental Field Strength
Method:	ANSI C63.10, Section 6.4, Radiated Emission From Unlicensed <30 MHz
Job Number/Customer:	R – 3296P-2 / Checkpoint Systems, Inc
Test Sample:	Antenna Pedestal
Model Number:	NP10 PAB W / Hub, NP10 SAB
Serial Number:	1003464400W1490001
Operating Mode:	ST BT, LM Wi-Fi, Tx=31, Rx=31, I/O Cables on GPIO's, Ethernet, LT/SND Cable, RF Coax Cable
Technician:	D. Rybicki
Date(s):	08/11/20
Temperature:	23.9 °C
Relative Humidity:	46 %
Notes: Total number of pulses 64 (32 per "block")	



Retlif Testing Laboratories

Report No. R-3296P-2

EMISSIONS TEST DATA SHEET

Test Specification:	FCC Part 15, Subpart B, Section 15.223(a), Fundamental Field Strength
Method:	ANSI C63.10, Section 6.4, Radiated Emission From Unlicensed <30 MHz
Job Number/Customer:	R – 3296P-2 / Checkpoint Systems, Inc
Test Sample:	Antenna Pedestal
Model Number:	NP10 PAB W / Hub, NP10 SAB
Serial Number:	1003464400W1490001
Operating Mode:	ST BT, LM Wi-Fi, Tx=31, Rx=31, I/O Cables on GPIO's, Ethernet, LT/SND Cable, RF Coax Cable
Technician:	M. Nowak
Date(s):	08/24/20
Temperature:	24.1 °C
Relative Humidity:	46 %
Detector:	Peak
Test Distance:	10m

Notes:

Frequency	Antenna Orientation / Height	EUT Orientation	Meter Reading	Correction Factor	Pulse Desensitization Factor	Distance Correction	Corrected Reading	Converted Reading	Limit
MHz		Degrees	dBuV	dB		dB	dBuV/m	uV/m	uV/m
8.255	Perpendicular / 1.00	328.7	41.8	11.1	24.44	-19.09	58.25	817.72	1000
8.255	Parallel / 1.00	99.4	41.3	11.1	24.44	-19.09	57.75	771.98	1000
8.255	Parallel to Ground / 1.00	58.6	40.2	11.1	24.44	-19.09	56.65	680.15	1000



Retlif Testing Laboratories

Report No. R-3296P-2

EMISSIONS TEST DATA SHEET

Test Specification:	FCC Part 15, Subpart B, Section 15.223(a), Fundamental Field Strength
Method:	ANSI C63.10, Section 6.4, Radiated Emission From Unlicensed <30 MHz
Job Number/Customer:	R – 3296P-2 / Checkpoint Systems, Inc
Test Sample:	Antenna Pedestal
Model Number:	NP10 PAB W / Hub, NP10 SAB
Serial Number:	1003464400W1490001
Operating Mode:	ST BT, LM Wi-Fi, Tx=31, Rx=31, I/O Cables on GPIO's, Ethernet, LT/SND Cable, RF Coax Cable
Technician:	M. Nowak
Date(s):	08/24/20
Temperature:	24.1 °C
Relative Humidity:	46 %
Detector:	Peak (converted to average via Duty Cycle correction)
Test Distance:	10m
Notes: Duty Cycle = 2.71%, -31.35dB	

Frequency	Antenna Orientation / Height	EUT Orientation	Corrected Peak Meter Reading	Duty Cycle Correction Factor	Corrected Reading	Converted Reading	Limit
MHz		Degrees	dBuV	dB	dBuV/m	uV/m	uV/m
8.255	Perpendicular / 1.00	328.7	58.25	-31.35	26.90	22.12	100
8.255	Parallel / 1.00	99.4	57.75	-31.35	26.40	20.89	100
8.255	Parallel to Ground / 1.00	58.6	56.65	-31.35	25.30	18.40	100



Retlif Testing Laboratories

Report No. R-3296P-2

FCC Part 15, Subpart C, Section 15.223 (b)
Test Data, Harmonics and Spurious Emissions
9 kHz to 1 GHz



Retlif Testing Laboratories

Report No. R-3296P-2

EMISSIONS TEST DATA SHEET

Test Specification:	FCC Part 15, Subpart C, Section 15.223(b), Harmonics and Spurious Emissions
Method:	ANSI C63.10, Section 6.4 and 6.5.
Job Number/Customer:	R – 3296P-2 / Checkpoint Systems, Inc
Test Sample:	Antenna Pedestal
Model Number:	NP10 PAB W / Hub, NP10 SAB
Serial Number:	1003464400W1490001
Operating Mode:	ST BT, LM Wi-Fi, Tx=31, Rx=31, I/O Cables on GPIO's, Ethernet, LT/SND Cable, RF
Technician:	M. Nowak
Date(s):	8/6/20
Temperature:	27.1 °C
Relative Humidity:	49 %
Detector:	Quasi-peak
Test Distance:	3m

Notes: The frequency range was scanned from 9 kHz to 30 MHz

The emissions observed from the EUT do not exceed the specified limits. The two highest readings relative to the limit are presented.

*Noise floor measurement, minimum sensitivity of measurement system.

Frequency	Antenna Position	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading	Converted to 300m	Converted Reading	Limit at 300m
MHz	(Par/Perp) / Height	Degrees	dBuV	dB	dBuV/m	dBuV/m	uV/m	uV/m
0.009								266.67
0.490								4.89
Frequency	Antenna Position	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading	Converted to 30m	Converted Reading	Limit at 30m
MHz	(Par/Perp) / Height	Degrees	dBuV	dB	dBuV/m	dBuV/m	uV/m	uV/m
0.490								48.98
1.705								14.08
1.705								30.00
*3.25	Par / 1.00	180.0	16.4	11.6	28.0	-	25.12	
*20.00	Par / 1.00	180.0	3.2	9.6	12.8	-	4.37	
30.00								30.00



Retlif Testing Laboratories

Report No. R-3296P-2

EMISSIONS TEST DATA SHEET

Test Specification:	FCC Part 15, Subpart C, Section 15.223(b), Harmonics and Spurious Emissions
Method:	ANSI C63.10, Section 6.4 and 6.5.
Job Number/Customer:	R – 3296P-2 / Checkpoint Systems, Inc
Test Sample:	Antenna Pedestal
Model Number:	NP10 PAB W / Hub, NP10 SAB
Serial Number:	1003464400W1490001
Operating Mode:	ST BT, LM Wi-Fi, Tx=31, Rx=31, I/O Cables on GPIO's, Ethernet, LT/SND Cable, RF
Technician:	M. Nowak
Date(s):	8/3/20
Temperature:	27.1 °C
Relative Humidity:	49 %
Detector:	Quasi-peak
Test Distance:	3m

Notes: The frequency range was scanned from 30 MHz to 1 GHz

The emissions observed from the EUT do not exceed the specified limits. The twelve highest readings relative to the limit are presented.

Frequency	Antenna Pol /Height	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading	Converted Reading	Limit
MHz	(V/H) / (m)	Degrees	dBuV	dB	dBuV/m	uV/m	uV/m
30.00							100
88.00							100
88.00							150
128.36	H / 1.44	85.4	22.6	13.4	36.0	63.10	
128.36	V / 1.00	358.5	18.6	13.4	32.0	39.81	
133.33	H / 1.40	98.9	18.6	13.8	32.4	41.69	
133.33	V / 1.00	172.6	13.7	13.8	27.5	23.71	
216.00							150
216.00							200
224.60	H / 1.00	221.2	18.9	13.4	32.3	41.21	
224.60	V / 1.00	49.7	21.7	13.4	35.1	56.89	
256.64	H / 1.39	105.0	20.4	14.9	35.3	58.21	
256.64	V / 1.00	192.8	19.7	14.9	34.6	53.70	
288.77	H / 1.90	91.8	27.7	16.5	44.2	162.18	
288.77	V / 1.00	201.7	28.2	16.5	44.7	171.79	
352.95	H / 1.88	121.7	23.8	17.7	41.5	118.85	
352.95	V / 1.00	199.4	21.7	17.7	39.4	93.33	
396.03	H / 1.00	72.5	15.2	18.7	33.9	49.55	
396.03	V / 1.00	315.1	8.9	18.7	27.6	23.99	



Retlif Testing Laboratories

Report No. R-3296P-2

Frequency	Antenna Pol /Height	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading	Converted Reading	Limit
MHz	(V/H) / (m)	Degrees	dBuV	dB	dBuV/m	uV/m	uV/m
539.99	H / 1.42	358.4	15.1	22.0	37.1	71.61	
539.99	V / 1.00	109.5	11.9	22.0	33.9	49.55	
545.40	H / 2.08	122.9	13.8	22.1	35.9	62.37	
545.40	V / 1.00	106.4	13.6	22.1	35.7	60.95	
641.68	H / 1.00	123.3	13.9	24.0	37.9	78.52	
641.68	V / 1.00	1.5	18.7	24.0	42.7	136.46	
673.78	H / 1.63	101.7	18.4	25.4	43.8	154.88	
673.78	V / 1.00	169.1	16.8	25.4	42.2	128.82	
900.03	H / 1.00	73.8	16.9	28.2	45.1	179.89	
900.03	V / 1.00	322.0	13.0	28.2	41.2	114.82	
960.00							200
960.00							500
1000.00							500



Retlif Testing Laboratories

Report No. R-3296P-2