Retlif Testing Laboratories

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FCC COMPLIANCE TEST REPORT
ON
VISONIC, INC.
315 MHZ PULSED RF TRANSMITTER
MODEL: MCT101
FCC ID: GSAMCT101MDS

CUSTOMER NAME: Visonic, Inc.

CUSTOMER P.O.: 9039

DATE OF REPORT: June 18, 1998

TEST REPORT NO.: R-7579-1

TEST START DATE: June 3, 1998

TEST FINISH DATE: June 5, 1998

TEST TECHNICIAN: D. Cortes

TEST ENGINEER: T. Schneider

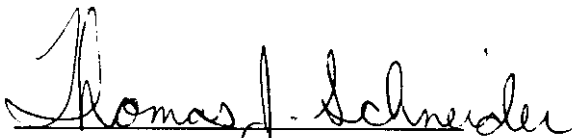
SUPERVISOR: R.J. Reitz

REPORT PREPARED BY: L. Anderson

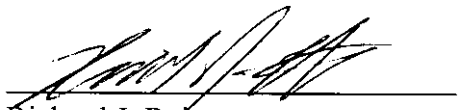
GOVERNMENT SOURCE INSPECTION: Not Applicable

CERTIFICATION AND SIGNATURES

We certify that this report is a true report 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.



Thomas J. Schneider
EMC Test Engineer
NVLAP Approved Signatory



Richard J. Reitz
Laboratory Manager
NVLAP Approved Signatory

NON-WARRANTY PROVISION
The testing services have been performed, findings obtained, and reports prepared in accordance with generally accepted testing laboratory principles and practices. This warranty is in lieu of all other warranties, either express 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 report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

TABLE OF EXHIBITS

EXHIBIT 2

Equipment Photographs

Para. 2.1033(b)(7)

EXHIBIT 6

Report of Measurements

Para. 2.1033(b)(6)

APPLICANT	MANUFACTURER
Visonic, Inc. 10 Northwood Drive Bloomfield, CT 06002	SAME

TEST SPECIFICATION: FCC Rules and Regulations Part 15, Subpart C, Para. 15.231

TEST PROCEDURE: ANSI C63.4:1992

TEST SAMPLE DESCRIPTION

BRANDNAME: Visonic, Inc. MODEL: MCT101

TYPE: Pulsed RF Transmitter

POWER REQUIREMENTS: One (1) 3.6 VDC Lithium Battery

FREQUENCY OF OPERATION: 315 MHz

TESTS PERFORMED

Para. 15.231(a), Radiated Emissions, Fundamental & Spurious

Para. 15.231(c), Occupied Bandwidth

Duty Cycle Determination

I HEREBY CERTIFY THAT: The measurements shown here were in accordance with the procedure indicated and that the energy emitted by this equipment was found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements and vouch for the qualifications of all persons taking them.

I FURTHER CERTIFY THAT: On the basis of the measurements made, the device tested is capable of operation in compliance with the requirements of Part 15 of the FCC Rules under normal use and maintenance.

SIGN	PRINT	TITLE
Thomas J. Schneider	Thomas J. Schneider	EMC Test Engineer

REPORT OF MEASUREMENTS

Applicant:	Visonic, Inc.
Device:	315 MHz Security Transmitter
FCC ID:	GSAMCT101MDS
Power Requirements:	One (1) 3.6 VDC Lithium Battery
Applicable Rule Section:	Part 15, Subpart C, Section 15.231

TEST RESULTS

15.231 (a) - The device is a Security/Safety of Life Transmitter designed to transmit emergency information in "man-down" situations for personnel safety and system status information.

15.231 (a)(1) - The transmitter is automatically activated by a switch if the user is knocked over or if the device tilts by more than 60 degrees. The device can also be manually activated by pressing an emergency button which is active at all times, irregardless of the switch position.

15.231 (a)(2) - During an emergency situation, the device transmits a 36 bit message along with a 24 bit transmitter ID every 30 seconds for up to 5 minutes.

15.231 (a)(3) - The unit performs periodic transmissions at 60 minute intervals for system integrity and status purposes.

15.231 (a)(4) - The device is used for Safety of Life purposes.

15.231 (b) - The fundamental field strength did not exceed 6040 μV/M (Average) at a test distance of 3 meters. In addition, the requirements of section 15.35 for averaging pulsed emissions and for limiting peak emissions were met.

The field strength of harmonic and spurious emissions did not exceed 604μV/M (AVERAGE).

15.231 (c) - The device operates at 315 MHz. The bandwidth of emissions did not exceed 0.25% of the operating frequency (787.5 kHz).

DETERMINATION OF FIELD STRENGTH LIMITS

The field strength limits shown below are found in Section 15.231.

	Frequency		Limit		
F1	=	260	3750	=	L1
Fo	=	315			Lo
F2	=	470	12500	=	L2

The formula below was utilized to determine the limits:

Limit = L1 + [(Fo-F1)(L2-L1)/(F2-F1)]

Solving yields:

Fundamental Limit = 6040 μV/M (AVERAGE) @ 3 Meters

Harmonic Limit = 604 μV/M (AVERAGE) @ 3 Meters

DETERMINATION OF DUTY CYCLE

Duty Cycle Determination was provided by Visonic and the worst case configuration was calculated as follows:

CALCULATION (WORST CASE):

Te = .4 mS x 36 bits x 2 + .4 mS (Start Bit) = 29.2 mS

DUTY CYCLE = 29.2 %

SPECTRUM ANALYZER DESENSITIZATION CONSIDERATIONS

Due to the nature of the emissions being measured, care was taken to ensure that the resolution bandwidth of the spectrum analyzer was adequate to provide accurate measurements. The following formula was utilized:

Pulse Desensitization = 20 Log (PW * BW * 1.5)

Setting pulse desensitization equal to zero and utilizing the minimum observed pulse width of 450 microseconds yields a minimum required bandwidth of 1481 Hz. FCC specified bandwidths of 100kHz and 1MHz were utilized below and above 1GHz, respectively.

GENERAL NOTES:

1. All readings were taken utilizing a peak detector function at a test distance of 3 meters.

2. The duty cycle was applied to the peak readings in order to determine the average value of the emissions.

3. All measurements were made with a new 3.6 VDC Lithium Battery installed in the unit.

4. The frequency was scanned from 30 MHz to 3.15 GHz. All emissions not reported were more than 20 dB below the specified limit.

Exhibit 6

Report of Measurements

Radiated Emissions Data, Para. 15.231(b)

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

TEST METHOD: **FCC Part 15 Subpart C Radiated Emissions**

CUSTOMER: Visonic Inc. JOB No.: R-7579-1

TEST SAMPLE: Pulsed RF Transmitter
FCC ID:GSAMCT101MDS

MODEL No.: MCT 101 SERIAL No.: N/A

TEST SPECIFICATION: FCC Part 15 Subpart C PARAGRAPH: 15.231

OPERATING MODE: Continuously Transmiting 315 Mhz Signal

TECHNICIAN: Dennis Cortes DATE: June 3,1998

NOTES: Test Distance: 3 Meters
Detector Function: Peak

Test Frequency	Antenna Pol./Height	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading	Converted Reading		Peak Limit
MHz	(H/V) / meters	X / Y / Z	dBuV	dB	dBuV/m	uV/m		uV/m
315	H/1.4	X	62.1	-3.6	58.5	841.4		60400
315	H/1.4	Y	52.2	-3.6	48.6	269.2		60400
315	H/2.7	Z	63.0	-3.6	59.4	933.3		60400
315	V/1.3	X	68.5	-3.6	64.9	1757.9		60400
315	V/1.3	Y	69.9	-3.6	66.3	2065.4		60400
315	V/2.5	Z	60.3	-3.6	56.7	683.9		60400
630	H/1.2	X	30.8	3.0	33.8	49.0		6040
630	H/1.3	Y	30.6	3.0	33.6	47.9		6040
630	H/1.3	Z	31.6	3.0	34.6	53.7		6040
630	V/1.1	X	32.6	3.0	35.6	60.3		6040
630	V/1.3	Y	34.9	3.0	37.9	78.5		6040
630	V/1.2	Z	31.0	3.0	34.0	50.1		6040
945	H/1.7	X	33.7	8.7	42.4	131.8		6040
945	H/1.2	Y	32.0	8.7	40.7	108.4		6040
945	H/1.2	Z	36.9	8.7	45.6	190.5		6040
945	V/1.3	X	39.9	8.7	48.6	269.2		6040
945	V/1.3	Y	42.2	8.7	50.9	350.8		6040
945	V/1.0	Z	34.9	8.7	43.6	151.4		6040
1260	H/1.3	X	45.8	-5.5	40.3	103.5		6040
1260	H/1.2	Y	45.3	-5.5	39.8	97.7		6040
1260	H/1.1	Z	48.4	-5.5	42.9	139.6		6040
1260	V/1.2	X	49.0	-5.5	43.5	149.6		6040
1260	V/1.2	Y	50.9	-5.5	45.4	186.2		6040
1260	V/1.9	Z	44.3	-5.5	38.8	87.1		6040
1575	H/1.3	X	44.8	-4.3	40.5	105.9		5000
1575	H/1.2	Y	44.0	-4.3	39.7	96.6		5000
1575	H/1.3	Z	45.0	-4.3	40.7	108.4		5000
1575	V/1.4	X	46.8	-4.3	42.5	133.4		5000
1575	V/1.2	Y	47.7	-4.3	43.4	147.9		5000
1575	V/1.1	Z	43.6	-4.3	39.3	92.3		5000

The frequency range was scanned from 30 MHz to 3.2 GHz. All emissions not recorded were more than 10dB below the specified limit. Emissions from the EUT do not exceed the specified limits.

*=Noise Floor Measurements (Minimum System Sensitivity)

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

TEST METHOD: **FCC Part 15 Subpart C Radiated Emissions**

CUSTOMER: Visonic Inc. JOB No.: R-7579-1

TEST SAMPLE: Pulsed RF Transmitter
FCC ID:GSAMCT101MDS

MODEL No.: MCT 101 SERIAL No.: N/A

TEST SPECIFICATION: FCC Part 15 Subpart C
PARAGRAPH: 15.231

OPERATING MODE: Continuously Transmiting 315 Mhz Signal

TECHNICIAN: Dennis Cortes DATE: June 3,1998

NOTES: Test Distance: 3 Meters
Detector Function: Peak

Test Frequency	Antenna Pol./Height	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading	Converted Reading		Peak Limit
MHz	(H/V) / meters	X / Y / Z	dBuV	dB	dBuV/m	uV/m		uV/m
1890	H/1.6	X	44.5	-2.3	42.2	128.8		6040
1890	H/1.1	Y	44.0	-2.3	41.7	121.6		6040
1890	H/1.2	Z	44.0	-2.3	41.7	121.6		6040
1890	V/1.0	X	45.1	-2.3	42.8	138.0		6040
1890	V/1.2	Y	44.8	-2.3	42.5	133.4		6040
1890	V/1.8	Z	43.4	-2.3	41.1	113.5		6040
2205	H/1.0	X	*43.4	-1.2	42.2	128.8		5000
2205	H/1.0	Y	*43.4	-1.2	42.2	128.8		5000
2205	H/1.0	Z	*43.4	-1.2	42.2	128.8		5000
2205	V/1.0	X	*43.4	-1.2	42.2	128.8		5000
2205	V/1.0	Y	*43.4	-1.2	42.2	128.8		5000
2205	V/1.0	Z	*43.4	-1.2	42.2	128.8		5000
2520	H/1.0	X	*41.3	0.2	41.5	118.9		6040
2520	H/1.0	Y	*41.3	0.2	41.5	118.9		6040
2520	H/1.0	Z	*41.3	0.2	41.5	118.9		6040
2520	V/1.0	X	*41.3	0.2	41.5	118.9		6040
2520	V/1.0	Y	*41.3	0.2	41.5	118.9		6040
2520	V/1.0	Z	*41.3	0.2	41.5	118.9		6040
2835	H/1.0	X	*42.0	1.7	43.7	153.1		5000
2835	H/1.0	Y	*42.0	1.7	43.7	153.1		5000
2835	H/1.0	Z	*42.0	1.7	43.7	153.1		5000
2835	V/1.0	X	*42.0	1.7	43.7	153.1		5000
2835	V/1.0	Y	*42.0	1.7	43.7	153.1		5000
2835	V/1.0	Z	*42.0	1.7	43.7	153.1		5000
3150	H/1.0	X	*41.4	3.6	45.0	177.8		6040
3150	H/1.0	Y	*41.4	3.6	45.0	177.8		6040
3150	H/1.0	Z	*41.4	3.6	45.0	177.8		6040
3150	V/1.0	X	*41.4	3.6	45.0	177.8		6040
3150	V/1.0	Y	*41.4	3.6	45.0	177.8		6040
3150	V/1.0	Z	*41.4	3.6	45.0	177.8		6040
	The frequency range was scanned from 30 MHz to 3.2 GHz. All emissions not recorded were more than 10dB below the specified limit. Emissions from the EUT do not exceed the specified limits.							
	*=Noise Floor Measurements (Minimum System Sensitivity)							

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

TEST METHOD:	**FCC Part 15 Subpart C Radiated Emissions**
CUSTOMER:	Visonic Inc. JOB No.: R-7579-1
TEST SAMPLE:	Pulsed RF Transmitter FCC ID:GSAMCT101MDS
MODEL No.:	MCT 101 SERIAL No.: N/A
TEST SPECIFICATION:	FCC Part 15 Subpart C PARAGRAPH: 15.231
OPERATING MODE:	Continuously Transmiting 315 Mhz Signal
TECHNICIAN:	Dennis Cortes DATE: June 3,1998
NOTES:	Test Distance: 3 Meters Detector Function: Peak Worst Case Duty Cycle: 29.2% (-10.7 dB Duty Cycle Correction Factor)

Test Frequency	Antenna Pol./Height	EUT Orientation	Peak Corrected Reading	Duty Cycle Corr. Factor	Corrected Average	Converted Average		Average Limit
MHz	(H/V) / meters	X / Y / Z	dBuV/m	dB	dBuV/m	uV/m		uV/m
315	H/1.4	X	58.5	-10.7	47.8	245.5		6040
315	H/1.4	Y	48.6	-10.7	37.9	78.5		6040
315	H/2.7	Z	59.4	-10.7	48.7	272.3		6040
315	V/1.3	X	64.9	-10.7	54.2	512.9		6040
315	V/1.3	Y	66.3	-10.7	55.6	602.6		6040
315	V/2.5	Z	56.7	-10.7	46.0	199.5		6040
630	H/1.2	X	33.8	-10.7	23.1	14.3		604
630	H/1.3	Y	33.6	-10.7	22.9	14.0		604
630	H/1.3	Z	34.6	-10.7	23.9	15.7		604
630	V/1.1	X	35.6	-10.7	24.9	17.6		604
630	V/1.3	Y	37.9	-10.7	27.2	22.9		604
630	V/1.2	Z	34.0	-10.7	23.3	14.6		604
945	H/1.7	X	42.4	-10.7	31.7	38.5		604
945	H/1.2	Y	40.7	-10.7	30.0	31.6		604
945	H/1.2	Z	45.6	-10.7	34.9	55.6		604
945	V/1.3	X	48.6	-10.7	37.9	78.5		604
945	V/1.3	Y	50.9	-10.7	40.2	102.3		604
945	V/1.0	Z	43.6	-10.7	32.9	44.2		604
1260	H/1.3	X	40.3	-10.7	29.6	30.2		604
1260	H/1.2	Y	39.8	-10.7	29.1	28.5		604
1260	H/1.1	Z	42.9	-10.7	32.2	40.7		604
1260	V/1.2	X	43.5	-10.7	32.8	43.7		604
1260	V/1.2	Y	45.4	-10.7	34.7	54.3		604
1260	V/1.9	Z	38.8	-10.7	28.1	25.4		604
1575	H/1.3	X	40.5	-10.7	29.8	30.9		500
1575	H/1.2	Y	39.7	-10.7	29.0	28.2		500
1575	H/1.3	Z	40.7	-10.7	30.0	31.6		500
1575	V/1.4	X	42.5	-10.7	31.8	38.9		500
1575	V/1.2	Y	43.4	-10.7	32.7	43.2		500
1575	V/1.1	Z	39.3	-10.7	28.6	26.9		500
	The frequency range was scanned from 30 MHz to 3.2 GHz. All emissions not recorded were more than 10dB below the specified limit. Emissions from the EUT do not exceed the specified limits.							

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

TEST METHOD: FCC Part 15 Subpart C Radiated Emissions

CUSTOMER: Visonic Inc. JOB No.: R-7579-1

TEST SAMPLE: Pulsed RF Transmitter
FCC ID:GSAMCT101MDS

MODEL No.: MCT 101 SERIAL No.: N/A

TEST SPECIFICATION: FCC Part 15 Subpart C
PARAGRAPH: 15.231

OPERATING MODE: Continuously transmiting 315 Mhz Signal

TECHNICIAN: Dennis Cortes DATE: June 3,1998

NOTES: Test Distance: 3 Meters
Detector Function: Peak Worst Case Duty Cycle: 29.2% (-10.7 dB Duty Cycle Correction Factor)

Test Frequency	Antenna Pol./Height	EUT Orientation	Peak Corrected Reading	Duty Cycle Corr. Factor	Corrected Average	Converted Average		Average Limit
MHz	(H/V) / meters	X / Y / Z	dBuV/m	dB	dBuV/m	uV/m		uV/m
1890	H/1.6	X	42.2	-10.7	31.5	37.6		604
1890	H/1.1	Y	41.7	-10.7	31.0	35.5		604
1890	H/1.2	Z	41.7	-10.7	31.0	35.5		604
1890	V/1.0	X	42.8	-10.7	32.1	40.3		604
1890	V/1.2	Y	42.5	-10.7	31.8	38.9		604
1890	V/1.8	Z	41.1	-10.7	30.4	33.1		604
2205	H/1.0	X	*42.2	-10.7	31.5	37.6		500
2205	H/1.0	Y	*42.2	-10.7	31.5	37.6		500
2205	H/1.0	Z	*42.2	-10.7	31.5	37.6		500
2205	V/1.0	X	*42.2	-10.7	31.5	37.6		500
2205	V/1.0	Y	*42.2	-10.7	31.5	37.6		500
2205	V/1.0	Z	*42.2	-10.7	31.5	37.6		500
2520	H/1.0	X	*41.5	-10.7	30.8	34.7		604
2520	H/1.0	Y	*41.5	-10.7	30.8	34.7		604
2520	H/1.0	Z	*41.5	-10.7	30.8	34.7		604
2520	V/1.0	X	*41.5	-10.7	30.8	34.7		604
2520	V/1.0	Y	*41.5	-10.7	30.8	34.7		604
2520	V/1.0	Z	*41.5	-10.7	30.8	34.7		604
2835	H/1.0	X	*43.7	-10.7	33.0	44.7		500
2835	H/1.0	Y	*43.7	-10.7	33.0	44.7		500
2835	H/1.0	Z	*43.7	-10.7	33.0	44.7		500
2835	V/1.0	X	*43.7	-10.7	33.0	44.7		500
2835	V/1.0	Y	*43.7	-10.7	33.0	44.7		500
2835	V/1.0	Z	*43.7	-10.7	33.0	44.7		500
3150	H/1.0	X	*45.0	-10.7	34.3	51.9		604
3150	H/1.0	Y	*45.0	-10.7	34.3	51.9		604
3150	H/1.0	Z	*45.0	-10.7	34.3	51.9		604
3150	V/1.0	X	*45.0	-10.7	34.3	51.9		604
3150	V/1.0	Y	*45.0	-10.7	34.3	51.9		604
3150	V/1.0	Z	*45.0	-10.7	34.3	51.9		604
	The frequency range was scanned from 30 MHz to 3.2 GHz. All emissions not recorded were more than 10dB below the specified limit. Emissions from the EUT do not exceed the specified limits.							

EQUIPMENT LIST

FCC Part 15 Subpart C Radiated Emissions

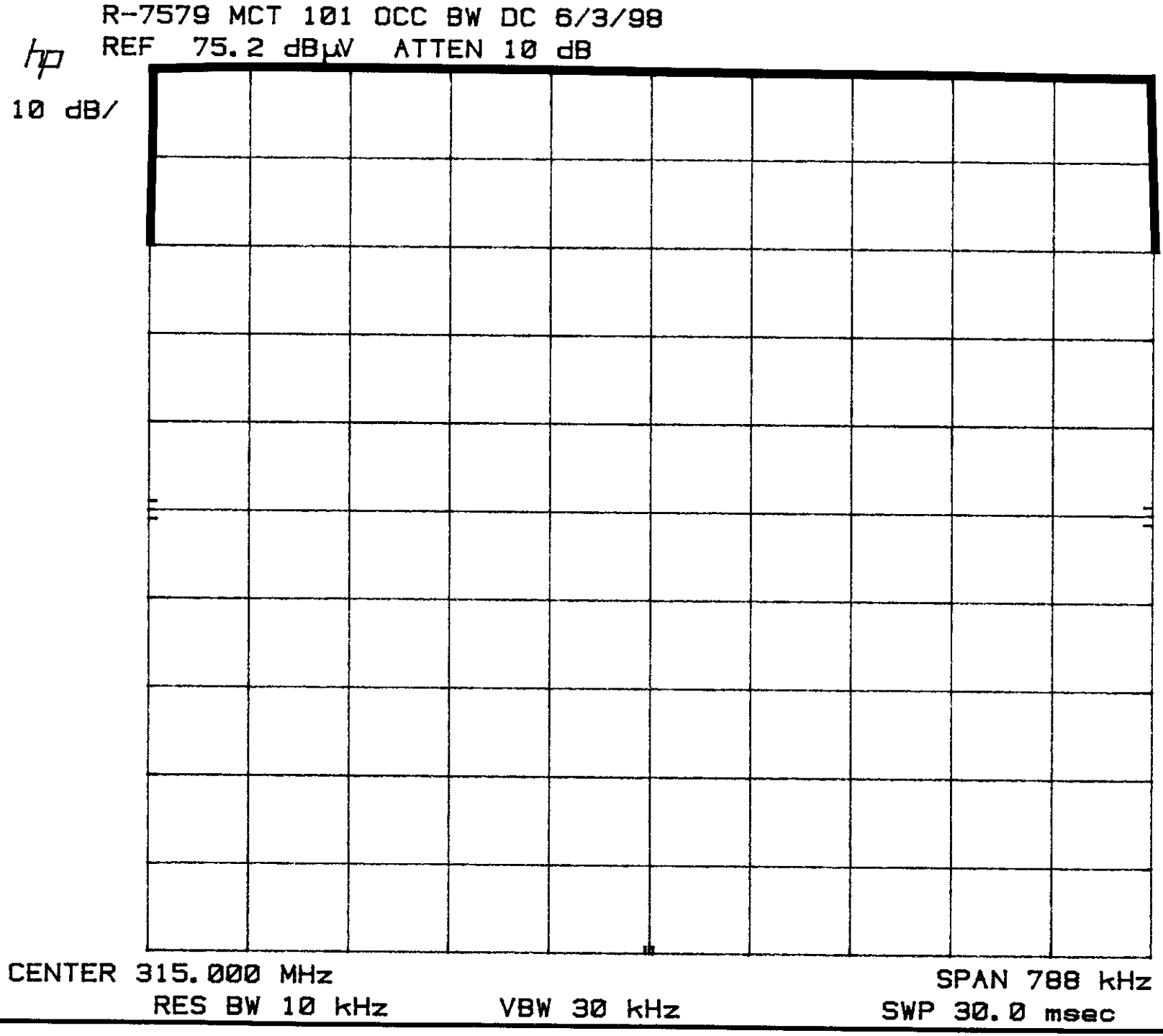
EN	Type	Manufacturer	Frequency Range	Model No.	Cal Date	Due Date
067	Open Area Test Site	Retlif	3 Meter	RNY	8/30/97	8/30/99
128C	Double Ridge Guide	Eaton Corporation	1 GHz - 18 GHz	96001	10/6/97	10/6/98
133	Broadband Pre-Amplifier	Electro-Metrics	10 kHz - 1 GHz, 26dB	BPA-1000	6/20/97	6/20/98
141	Spectrum Analyzer	Hewlett Packard	100 Hz - 40 GHz	8566B	3/2/98	9/2/98
141A	Graphics Plotter	Hewlett Packard	N/A	7470A	3/4/98	3/4/99
141B	Quasi-Peak Adaptor	Hewlett Packard	100 Hz - 1 GHz	85650A	3/3/98	9/3/98
206B	6.0 dB Attenuator	Texscan	0 - 1.0 GHz	FP-50 - 6 dB	6/20/97	6/20/98
523	Biconilog	Electro-Mechanics	26 MHz - 1100 MHz	3143	9/30/97	9/30/98
543	Preamplifier	Hewlett Packard	1.0 GHz - 26.5 GHz	8449B	8/12/97	8/12/98

Exhibit 6

Report of Measurements

Occupied Bandwidth, Para. 15.231(c)

Customer:	Visonic, Inc.
Test Sample:	315 Mhz Transmitter
Model No:	MCT101 FCC ID: GSAMCT101MDS
Test Method:	FCC 15.231 (c) Occupied Bandwidth
Notes:	The Bandwidth of the emission is not wider than .25% of the center frequency 20dB down from the modulated carrier
Date:	June 3,1998
Tech:	Dennis Cortes
Sheet	1 of 2



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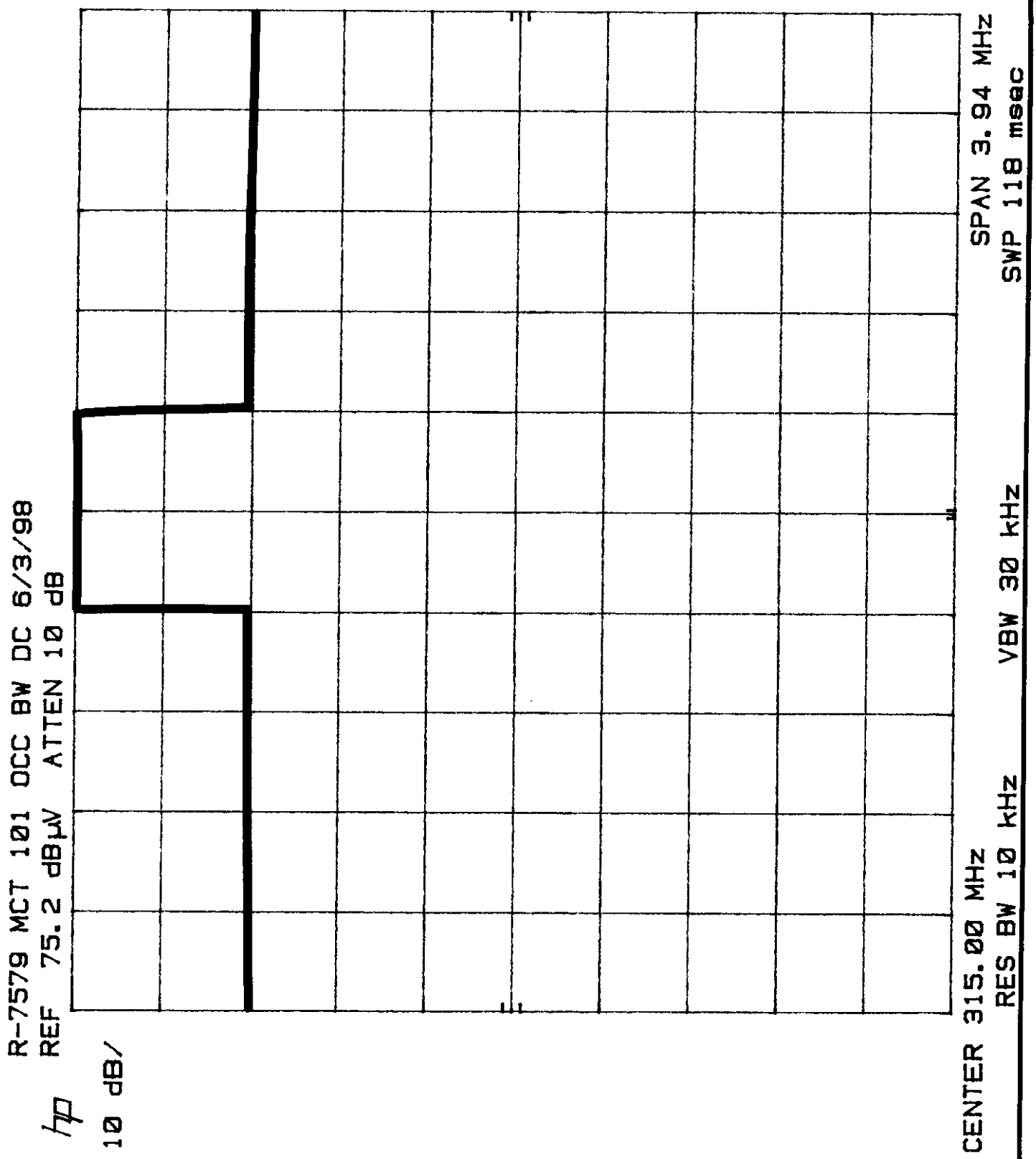

Customer:	Visonic, Inc.
Test Sample:	315 Mhz Transmitter
Model No.:	MCT101 FCC ID: GSAMCT101MDS
Test Method:	FCC 15.231 (c) Occupied Bandwidth
Notes:	The Bandwidth of the emission is not wider than .25% of the center frequency 20dB down from the modulated carrier

Date: June 3,1998 Tech: Dennis Cortes Sheet 2 of 2

Retlif Testing Laboratories

Report No. R-7579-1