

TEST DATA OF JMA-5320

Type JMA-5320 Ser. No. LZ58291

Scanner Unit NKE-2252

Display Unit NCD-4510

Ship's Main DC24 V

Date September.16.2004

Section Chief Osamu Yano

Inspector H. Morita

Mechanical Tests

Appearance and Structure

Scanner Unit	Good
Display Unit	Good

Electrical Tests

2.1 Working of each operation unit

Scanner Unit	Good
Keyboard Unit	Good
STBY Key	Good
TX/PRF Key	Good
EBL1/EBL2 key	Good
VRM1/VRM2 key	Good
ALARM ACK key	Good
PANEL key	Good
MOB key	Good
ACQ key	Good
TGT CNCL key	Good
TGT DATA key	Good
FUNC key	Good
USER key1	Good
USER key2	Good
AZI MODE [1] key	Good
MAP [2] key	Good
VECT R/T [3] key	Good
TM/RM [4] key	Good
OFF CENT [5] key	Good
MARK [6] key	Good
DAY/NIGHT [7] key	Good
RR/HL [8] key	Good
GZ ALARM [9] key	Good
TRAILS [0] key	Good
RADAR MENU key	Good
ATA MENU key	Good
+ RANGE – key	Good
EBL Control	Good
VRM Control	Good
MULTI Control	Good
AUTO-RAIN Control	Good
AUTO-SEA Control	Good
GAIN/PL Control	Good
Trackball	Good

1.1 Scanner Unit

VSWR	frequency (MHz)	VSWR
	9380	1.2
	9410	1.2
	9440	1.2
Scanner Rotation Speed		24 rpm

2.3 Transmitter

Magnetron Ser. No.	A0192A
Operating Frequency	
(at 0.07 μ s PULSE 0.125 n.m.)	9410 MHz
(at 0.2 μ s PULSE 0.75 n.m.)	9408 MHz
(at 0.4 μ s PULSE 1.5 n.m.)	9406 MHz
(at 0.8 μ s PULSE 3.0 n.m.)	9406 MHz
(at 1.0 μ s PULSE 6.0 n.m.)	9406 MHz
(at 1.2 μ s PULSE 96.0 n.m.)	9406 MHz
Peak Output Power	
(at 0.07 μ s PULSE 0.125 n.m.)	17.89 kW
(at 0.2 μ s PULSE 0.75 n.m.)	17.72 kW
(at 0.4 μ s PULSE 1.5 n.m.)	17.92 kW
(at 0.8 μ s PULSE 3.0 n.m.)	19.30 kW
(at 1.0 μ s PULSE 6.0 n.m.)	19.02 kW
(at 1.2 μ s PULSE 96.0 n.m.)	19.17 kW
Pulse Length	
(at 0.07 μ s PULSE 0.125 n.m.)	0.0864 μ s
(at 0.2 μ s PULSE 0.75 n.m.)	0.222 μ s
(at 0.4 μ s PULSE 1.5 n.m.)	0.412 μ s
(at 0.8 μ s PULSE 3.0 n.m.)	0.776 μ s
(at 1.0 μ s PULSE 6.0 n.m.)	0.984 μ s
(at 1.2 μ s PULSE 96.0 n.m.)	1.200 μ s

1.2 Receiver

MIC Front-end Ser. No.	3L7245
Diode limiter Ser. No.	3611A
IF Center Frequency	60 MHz
IF Bandwidth	20/6/3 MHz

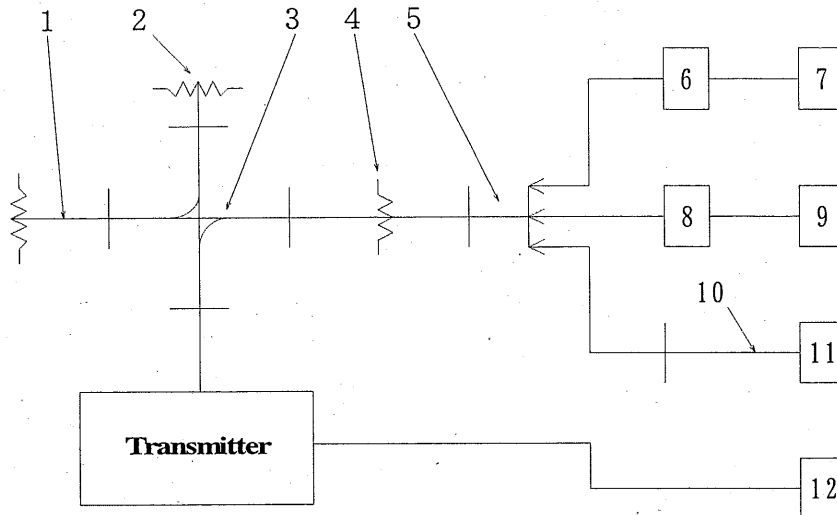
1.3 Display

Input Voltage and Current	DC.24V 2.43A (58W)
Repetition Frequency	
(0.07 μ s)	2200 Hz
(0.2 μ s)	2200 Hz
(0.4 μ s)	1400 Hz
(0.8 μ s)	750 Hz
(1.0 μ s)	650 Hz
(1.2 μ s)	520 Hz

2. Overall Test

Working Time of Timer	1.5 m
Input Variation (21.6Vdc – 42Vdc)	Good
Overall Sensitivity	Good
Minimum Range	Good
Bearing Accuracy	Good
Mechanical Noise	Good

(Sec. 2.985) 1.0 RF Power Output
 (Sec. 2.989) 2.0 Occupied Bandwidth



1:Dummy Load	—	Shimada
2:high power Dummy Load	WTM-0910	MANUF NIHON KOSHUHA
3:Directional Coupler	50351	Shimada
Coupling -20 dB		
4:Attenuator	X382A	HP
5:Adaptor	X281A	HP
6:Power Sensor	8481A	HP
7:Power Meter	435A	HP
8:Crystal Detector	423B	HP
9:Oscilloscope	2445B	Tektronix
10:Coaxial Cable	MI-04	SONY/Tektronix
11:Spectrum Analyzer	8592A	HP
12:Frequency Counter	5300A	HP

Measurement Point : Transmitter Output

FCC Submittal Material Data

(Sec. 2.985)

1.0 RF Power Output

1.1 Peak Power

(at 0.07 μ s PULSE 0.125 n.m.)	17.89 kW
(at 0.2 μ s PULSE 0.75 n.m. middle)	17.72 kW
(at 0.4 μ s PULSE 1.5 n.m. long)	17.92 kW
(at 0.8 μ s PULSE 3 n.m. long)	19.30 kW
(at 1.0 μ s PULSE 6 n.m. long)	19.02 kW
(at 1.2 μ s PULSE 96 n.m.)	19.17 kW

1.2 Average Power

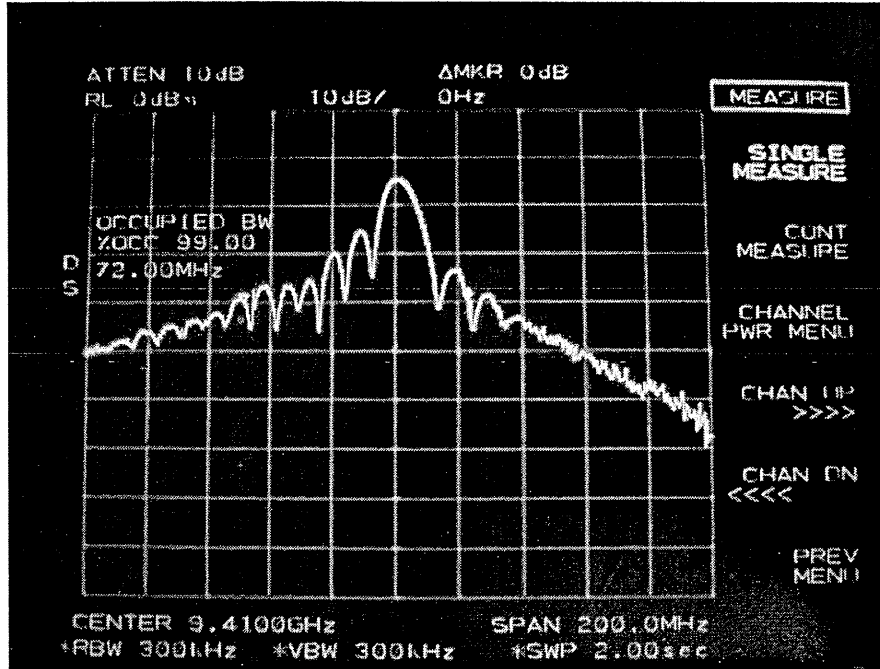
(at 0.07 μ s PULSE 0.125 n.m.)	275 μ W
(at 0.2 μ s PULSE 0.75 n.m. middle)	700 μ W
(at 0.4 μ s PULSE 1.5 n.m. long)	820 μ W
(at 0.8 μ s PULSE 3 n.m. long)	890 μ W
(at 1.0 μ s PULSE 6 n.m. long)	965 μ W
(at 1.2 μ s PULSE 96 n.m.)	930 μ W

1.3 Load Impedance

VSWR 1.05 at 9.36 – 9.46 GHz

(Sec. 2.989) 2.0 Occupied Bandwidth
 2.1 0.07 μ S Pulse PRF 2240Hz
 0.07 μ S Pulse Width 0.0864 μ S

Scale
10dB/Div

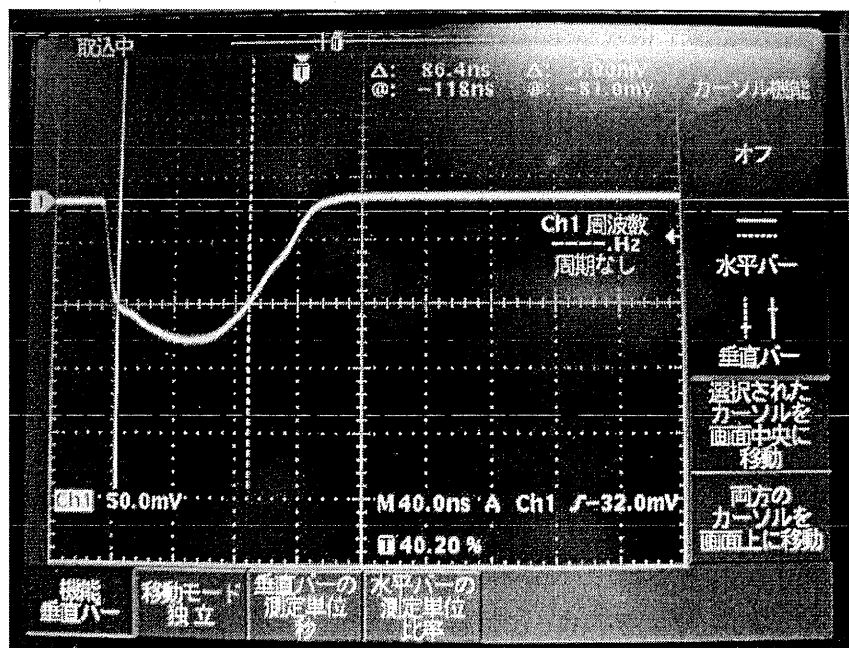


RF Spectrum
0.07 μ S Pulse
OBW=72 MHz

Scale 20MHz/Div
Center Frequency 9410MHz

(Sec. 2.987)

Scale
50mV/Div



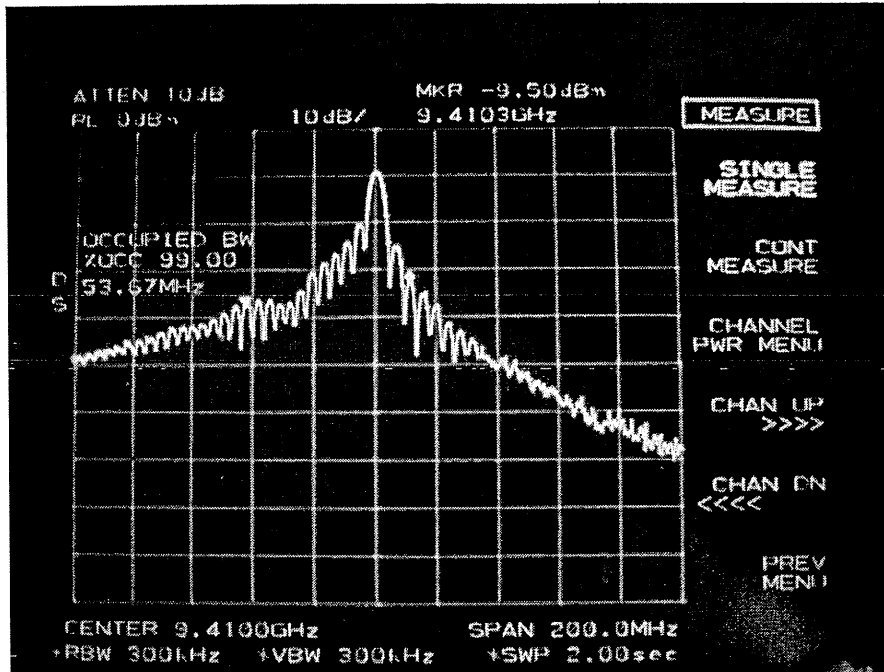
← -3 dB
Detected RF Pulse
0.07 μ S Pulse

Scale 0.04 μ S/Div

(Sec. 2.989)

2.2 0.2 μ S Pulse PRF 2240Hz
0.2 μ S Pulse Width 0.222 μ S

Scale
10dB/Div



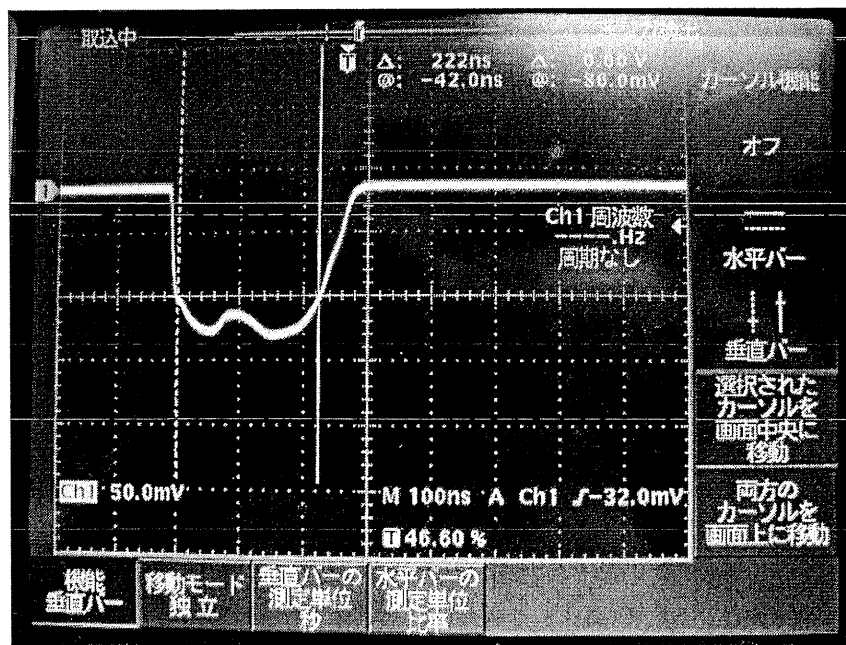
RF Spectrum
0.2 μ S Pulse

OBW=53.67MHz

Scale 20MHz/Div
Center Frequency 9410MHz

(Sec. 2.987)

Scale
50mV/Div

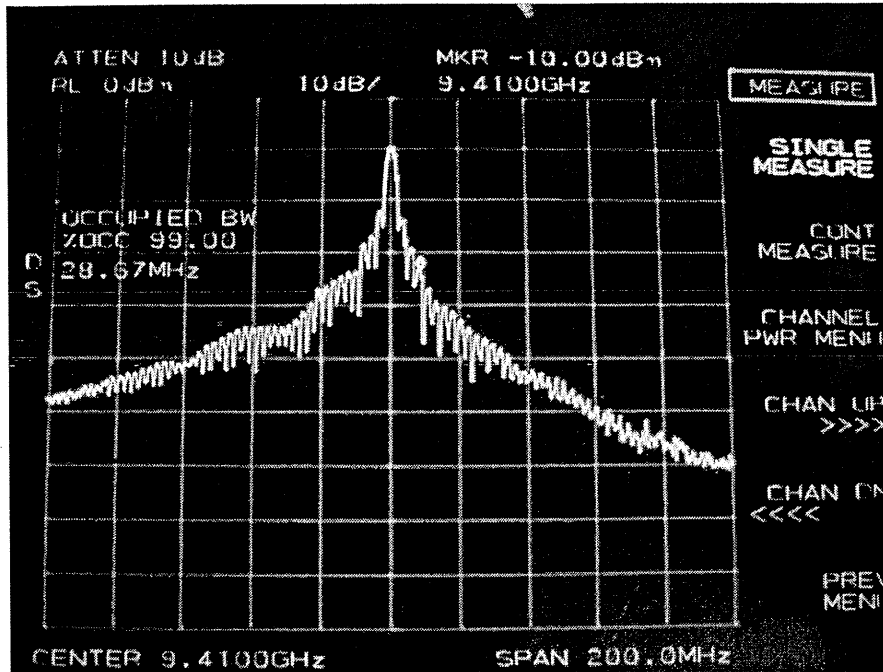


Scale 0.1 μ S/Div

(Sec. 2.989)

2.3 0.4 μ S Pulse PRF 1398Hz
0.4 μ S Pulse Width 0.412 μ S

Scale
10dB/Div

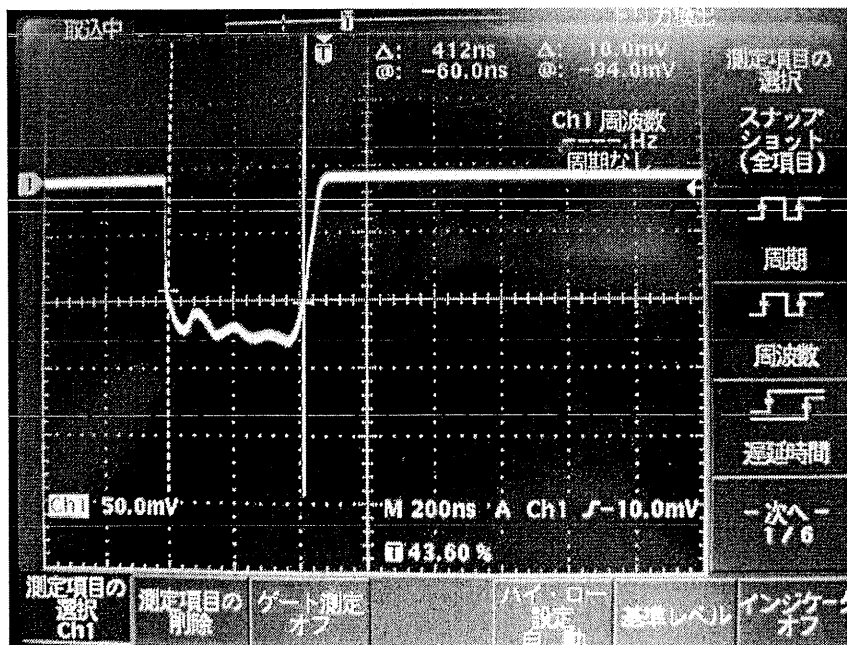


RF Spectrum
0.4 μ S Pulse
OBW=28.67MHz

Scale 20MHz/Div
Center Frequency 9410MHz

(Sec. 2.987)

Scale
50mV/Div



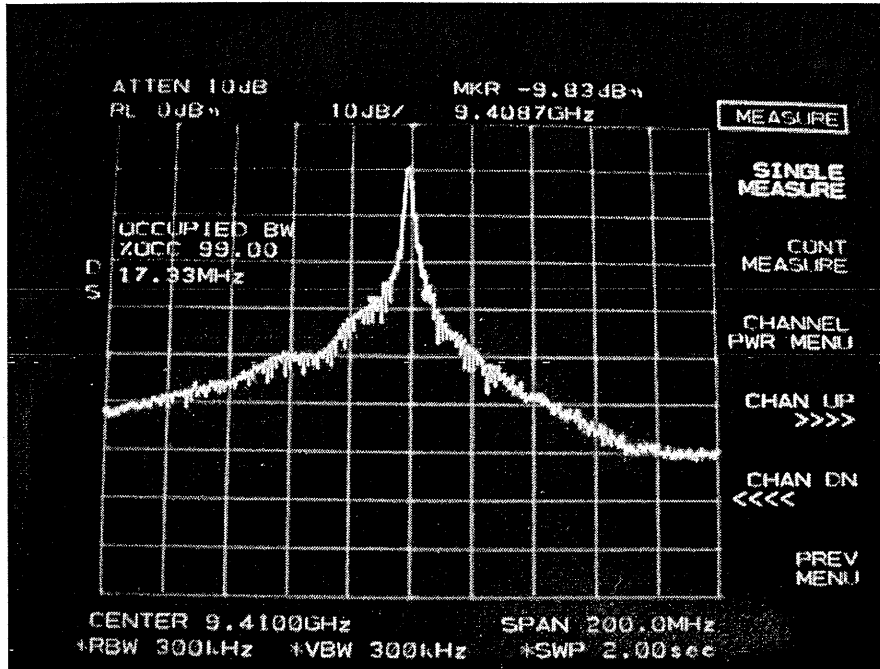
\leftarrow -3 dB
Detected RF Pulse
0.4 μ S Pulse

Scale 0.2 μ S/Div

(Sec. 2.989)

2.4 0.8 μ S Pulse PRF 748Hz
0.8 μ S Pulse Width 0.776 μ S

Scale
10dB/Div

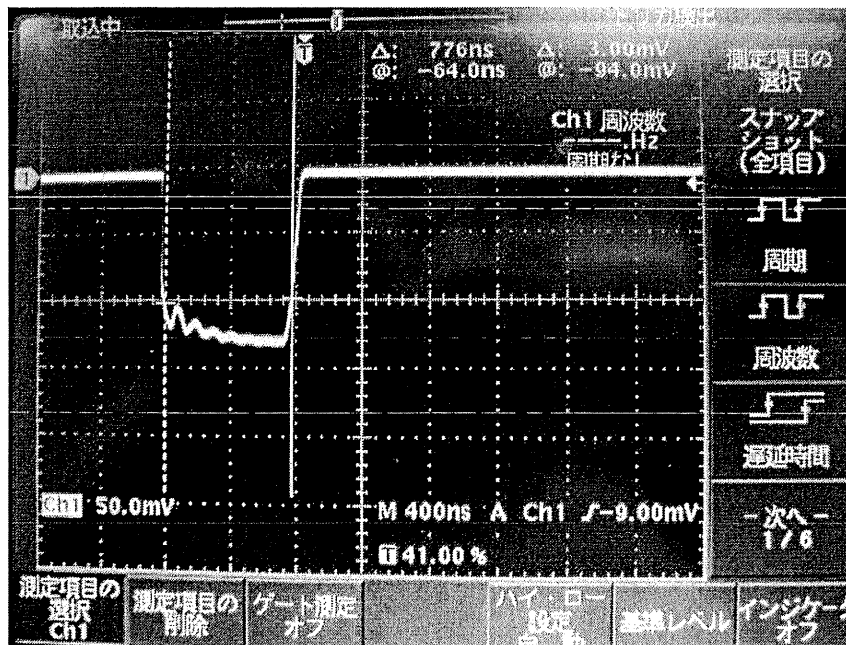


RF Spectrum
0.8 μ S Pulse
OBW=17.33MHz

Scale 20MHz/Div
Center Frequency 9409MHz

(Sec. 2.987)

Scale
50mV/Div



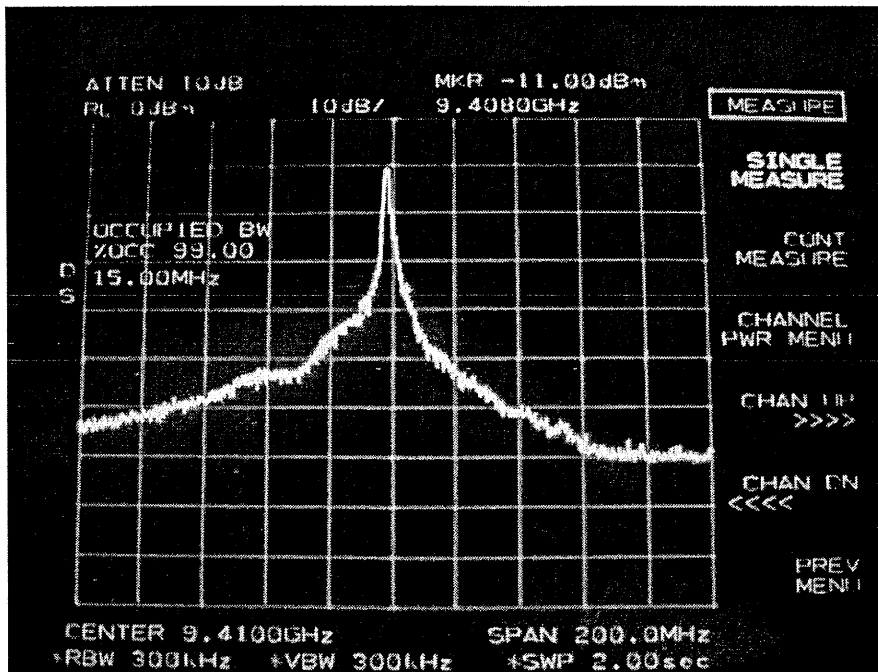
Detected RF
Pulse
0.8 μ S Pulse

Scale 0.4 μ S/Div

(Sec. 2.989)

2.5 1.0 μ S Pulse PRF 649Hz
1.0 μ S Pulse Width 0.984 μ S

Scale
10dB/Div

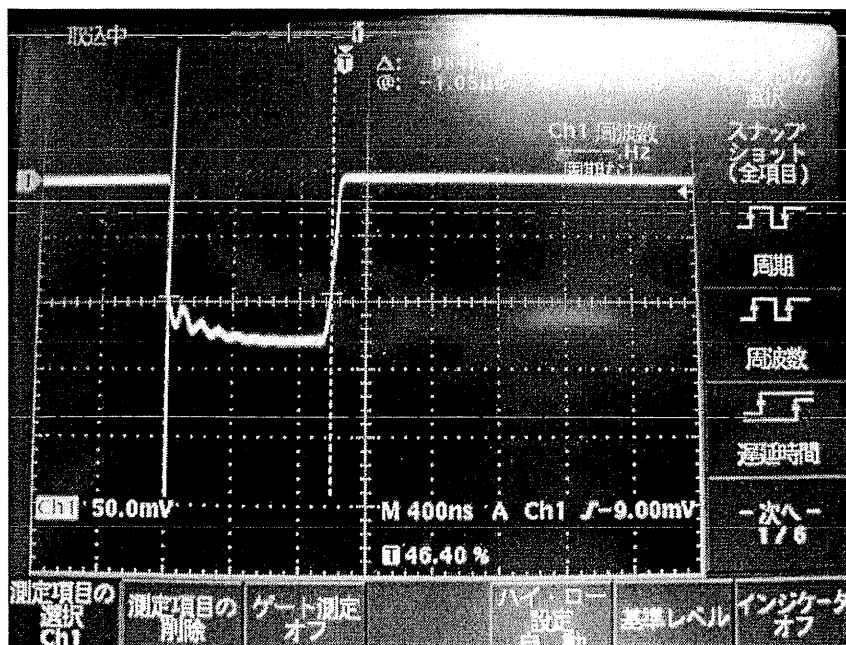


RF Spectrum
1.0 μ S Pulse
OBW=15MHz

Scale 20MHz/Div
Center Frequency 9408MHz

(Sec. 2.987)

Scale
50mV/Div



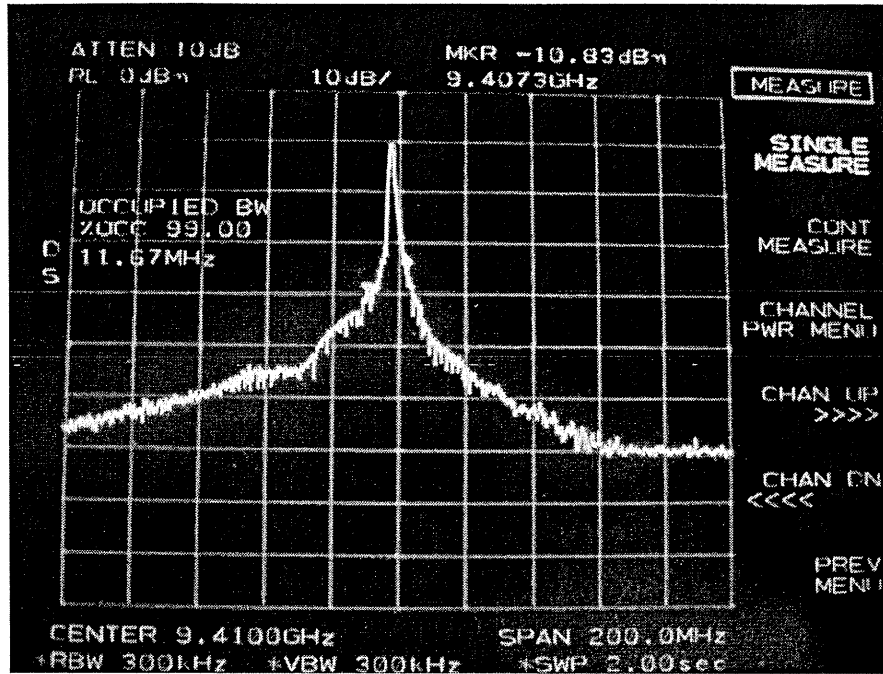
← -3 dB
Detected RF Pulse
1.0 μ S Pulse

Scale 0.4 μ S/Div

(Sec. 2.989)

2.6 1.2 μ S Pulse PRF 509Hz
1.2 μ S Pulse Width 1.2 μ S

Scale
10dB/Div



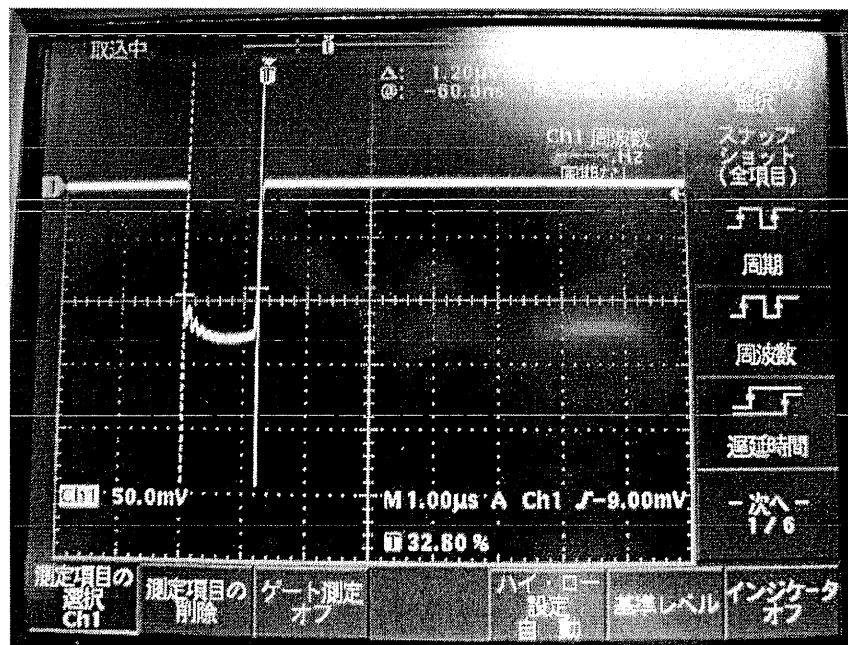
RF Spectrum
1.2 μ S Pulse

OBW=11.67MHz

Scale 20MHz/Div
Center Frequency 9407MHz

(Sec. 2.987)

Scale
50mV/Div



← -3 dB

Detected RF
Pulse

1.2 μ S Pulse

Scale 1.0 μ S/Div