

INTERNATIONAL MARKETING FIELD REPORT ^{7K}

SPS

TEKTRONIX CANADA INC.

CUSTOMER
Northern Telecom

FIELD ENGINEER
Rick Lillico *RF*

BEAVERTON ROUTING

CITY & STATE
Ottawa, Ontario

MONTH-DAY-YEAR
July 14/80

Routed by Roger Loop

GROUP & FUNCTION
Repeater Production/Optics Production

RESPONSIBILITIES & NAMES

Rashid Rakek/Merv Perry

Marlow Butler
Ralph Ebert
Dave McCullough
Lew Kasch
Peter Schot
Chuck Scott
George Moppert
Jim Cavoretto
Al Peecher
Bill Loveless
Klaas Vogel
Ken Holland
Jean Claude Balland
Mike Hurley
Clark Foley
Rick Lillico
SPS
File:
Chron
7854 Customer Reaction

PRODUCT USE/MEASUREMENT REQUIREMENT - 7854

Both these groups have total requirements for 10-20 7854's in production environments.

Features which they will use:

1. Signal Averaging the trace from sampling plug-ins, 7S12, S4, S53, removes random noise from signal.
2. The ability to process incoming data with external constants.
3. The system lets unskilled operators accurately make repetitive measurements. Interpretation is removed from the measurement.
4. The 7854 can stand alone and run programs as a semi-automated test set.

The value added features were not significant enough to warrant a WP1310 system. As a GPIB programmable instrument most interest was shown with regard to interfacing to the HP85, 9825 or 9835. Perhaps utility software can be made available for sale as an option for the 7854 for controllers running BASIC.

Their comments are as follows:

1. The keyboard on the 7854 is too complicated to leave with an instrument on the production floor unless it is locked out. It would be ideal if it had a production test keyboard with soft programmable keys loaded down as required and run by semi-skilled operators.
2. Programmable plug-ins would have taken this unit into the automatic test set area.
3. Inexpensive bulk storage for data and programs.
4. An inexpensive controller with limited graphics.

CANADA

BEAVERTON

CUSTOMER IBM UK Limited	FIELD ENGINEER Gavin Beattie	BEAVERTON ROUTING 7000 Series Marketing Field Report Dist. List
ADDRESS Spango Valley GREENOCK	MONTH-DAY-YEAR 1 19 82	
GROUP & FUNCTION		
RESPONSIBILITIES & NAMES		Val Garuts 39-111 Marlow Butler 50-274 Ralph Ebert 74-115 Dave McCullough Peter Schot Chuck Scott 39-049 Jim Cavoretto Al Peecher 39-740 Bill Loveless Klaas Vogel EMC Thor Hallen 39-111 Mike Sisavic Y3-245 Dick Freshour 53-108 Jack Lyngdal 39-615 Walt Ventgen 47-143 Mike Hurley 51-244 Jim Koehn 51-304 Bud Nelson 54-074 Harve Ballard 39-764
INSTRUMENT TYPE(S) 7854/1980B		*Route Dave's copy to all 5K/7K personnel
PRODUCT USE	CUSTOMER REACTION TO PRODUCT	
MEASUREMENT REQUIREMENT	COMPETITIVE INSTRUMENT PERFORMANCE	
REASON FOR PURCHASE	<input checked="" type="checkbox"/> CUSTOMER REACTION TO BUSINESS PRACTICES	

At present we are in competition with HP at IBM, Greenock and the choice is between their 1980B and the 7854. The customer prefers the 7854 for the calculating power of the machine, but one feature of the 1980 is that it has total programmability over the bus.

At this moment HP are offering an 8% across the board discount on all boxes. The 7854 is not tied into our Multi-National agreement with IBM.

I am at present arranging demos of the 7854.

RECEIVED
MAR 15 1982
CD MRKTO ADMIN.

Gavin -
Thank you for the information. I can only hope that your sale was successful.

Gary Kirchberger
Lab Scope Marketing
3/29/82

RECEIVED
MAR 17 1982
LAB SCOPE MARKETING
CD 027

Prospect		FE Salesperson - Field Office	
BBC & Cie AG		Theo von Wartburg, Zug	
City & State/Country			
Dättwil, Switzerland			
Group & Function		Month - day - year	
KLR (Central research)		1-13-82/uv	
Responsibilities & Names			
M. Uhlmann, Purchase			
Product Type(s)			
7000			
<input type="checkbox"/>	Product use	<input checked="" type="checkbox"/>	Customer reaction to product
<input type="checkbox"/>	Measurement requirement	<input type="checkbox"/>	Competitive performance/pricing
<input type="checkbox"/>	Reason for purchase	<input type="checkbox"/>	Customer reaction to business practices

Beaverton Routing

7000 Series Marketing
Field Report Dist.
List

Val Garuts 39-111
Marlow Butler 50-274
Ralph Ebert 74-115
Dave McCullough
Peter Schot
Chuck Scott 39-049
Jim Cavoretto
Al Peecher 39-740
Bill Loveless
Klaas Vogel EMC
Thor Hallen 39-111
Mike Sisavic Y3-245
Dick Freshour 53-108
Jack Lyngdal 39-615
Walt Ventgen 47-143
Mike Hurley 51-244
Jim Koehn 51-304
Bud Nelson 54-074
Harve Ballard 39-764

*Route Dave's copy to
all 5K/7K personnel

Mr. Uhlmann complained that all 7000-series scopes have to be sent for warranty repair during the first few months of use.

He thinks that Tektronix product quality and final-check is on the way to worsen.

(BBC KLR owns ca.11 each 78XX and ca.15each 76XX scopes)

Theo-

You could help us if you can more specific information such as product types and serial numbers. This will help us track down the problem areas.

Bob Bousquet
Lab Scopes Mktg

RECEIVED

MAR 5 1982

LAB SCOPE MARKETING

INTERNATIONAL MARKETING FIELD REPORT

CUSTOMER Marconi Avionics	FIELD ENGINEER Lionel Durant	BEAVERTON ROUTING
ADDRESS Hemel Hempstead HERTS	MONTH-DAY-YEAR 12 15 81	7000 Series Marketing Field Report Dist. List
GROUP & FUNCTION Test Engineering		
RESPONSIBILITIES & NAMES John Tees		
INSTRUMENT TYPE(S) 7854		

PRODUCT USE	CUSTOMER REACTION TO PRODUCT
MEASUREMENT REQUIREMENT	COMPETITIVE INSTRUMENT PERFORMANCE
REASON FOR PURCHASE	CUSTOMER REACTION TO BUSINESS PRACTICES

- Val Garuts 39-111
 - Marlow Butler 50-274
 - Ralph Ebert 74-115
 - Dave McCullough
 - Peter Schot
 - Chuck Scott 39-049
 - Jim Cavoretto
 - Al Peecher 39-740
 - Bill Loveless
 - Klaas Vogel EMC
 - Thor Hallen 39-111
 - Mike Sisavic Y3-245
 - Dick Freshour 53-108
 - Jack Lyngdal 39-615
 - Walt Ventgen 47-143
 - Mike Hurley 51-244
 - Jim Koehn 51-304
 - Bud Nelson 54-074
 - Harve Ballard 39-764
- *Route Dave's copy to all 5K/7K personnel

John Tees is involved in test engineering work on ATE systems for NIMROD. The current system uses R7903's for manual check on waveforms. Although John is not directly involved in specifying the equipment to be used, his feelings were that the facilities offered by 7854 would be of great value. His main concern was that we could not offer a rack mount version.

*Lionel -
Thank you for the information. Of course, you are aware of the rack adapter # 040-0611-01 on page 349 of the catalogue. Also, there are a small number of prototype kits for a rack-drawer for the waveform calculator, and this could be obtained through a modified product request. Sorry. We just don't have a rackmount version.
Gary Kirchberger
Lab Scopes Marketing
4/8/82*

RECEIVED
MAR 31 1982
CD MRKTG. ADMIN.

APR 6 1982
LAB SCOPE MARKETING
39-327

MARKETING FIELD REPORT

Customer/Prospect BRITISH AEROSPACE AUSTRALIA	FE/Salesperson - Field Office GRANT TAYLOR ADELAIDE.	Beaverton Routing
City & State/Country ADELAIDE - SOUTH AUSTRALIA - AUSTRALIA.	Month-day-year 2 - 25 - 82	7000 Series Marketing Field Report Dist. List
Group & Function SPECIAL PROJECTS - (CLASSIFIED).		
Responsibilities & Names ENGINEER - CHRIS PREECE.		Val Garuts 39-111 Marlow Butler 50-27 Ralph Ebert 74-115 Dave McCullough Peter Schot Chuck Scott 39-049 Jim Cavoretto Al Peecher 39-740 Bill Loveless Klaas Vogel EMC Thor Hallen 39-111 Mike Sisavic Y3-245 Dick Freshour 53-10 Jack Lyngdal 39-615 Walt Ventgen 47-143 Mike Hurley 51-244 Jim Koehn 51-304 Bud Nelson 54-074 Harve Ballard 39-764 *Route Dave's copy to all 5K/7K personnel
Product Type(s) 7854.		
Product use	Customer reaction to product	
Measurement requirement	Competitive performance/pricing	
Reason for purchase	Customer reaction to business practices	

Chris and his staff were having difficulty getting consistent results from a circuit board that had to be set up accurately. The types of measurements being performed were, Frequency - Pulse Width - Rise/Fall Times - Delays - Voltage Levels - etc, etc..

Most of the measurements being performed are done using 7000 series Scopes (7603 - 7834).

After discussing their requirements I suggested setting the 7854 up for Demo. The following comments were made after the Demo.

- 1) Waveform Measurements:- Using cursors (tremendous).
- 2) Waveform Storage:- Storing approx. 5 waveforms - they can't understand why they have managed without it.

Programming:- This is the main reason for them requesting to Purchase a system. It allows the engineer to Pass the measurement task onto a less skilled user, who can acquire the results by viewing the stack once the program has run through.

Chris has requested that a unit be purchased, unfortunately the Project is for the Army, therefore purchase will be late 1982 or early 1983.

RECEIVED
MAR 31 1982
CD MRKTG. ADMIN.

RECEIVED
APR 6 1982
LAD SCOPE MARKETING
30027
*Excellent!
Grant Kirchberger
4/8/82*

Customer / Prospect BBC Brown Boveri & Cie.		FE Salesperson - Field Office Theo von Wartburg/Switzerland		Beaverton Routing	
City & State / Country Dättwil		Month - day - year June - 13 - 80/sc		Routed by Roger Loop	
Group & Function BBC Company Research		Responsibilities & Names Dr. Mastner		Marlow Butler Ralph Ebert Dave McCullough Lew Kasch Peter Schot Chuck Scott George Moppert Jim Cavoretto Al Peecher Bill Loveless Klaas Vogel Ken Holland Jean Claude Balland Theo von Wartburg	
Product Type(s)		Product use		File:	
<input type="checkbox"/>	Measurement requirement	<input checked="" type="checkbox"/>	Customer reaction to product	<input type="checkbox"/>	Chron
<input type="checkbox"/>	Reason for purchase	<input type="checkbox"/>	Competitive performance/pricing	<input type="checkbox"/>	7854 Other
<input type="checkbox"/>		<input type="checkbox"/>	Customer reaction to business practices	Beaverton Date Stamp	

Customer Reaction to Product 7854

Dr. Mastner was impressed from the 7854 demo. He has to calculate the RMS values from very complex, high frequency signals during the next research program.

For doing this "hand made" RMS calculating he needs hours. I did it with simply pressing one knob.

Dr. Mastner was prepared to order the 7854 immediately if it would be possible to deliver it within 1 months max. delivery time. So he will put it on the 81 budget.

Application: general EE + Research

*These
sounds like the 7854
will be a good fit for
Dr. Mastner
Thanks for
Roger Loop
with product mgr.*

INTERNATIONAL MARKETING FIELD REPORT

CUSTOMER CNRS		FIELD ENGINEER / FIELD OFFICE PATRICK GIANINA		N° 51		BEAVERTON ROUTING	
CITY & STATE / COUNTRY RESEARCH		NEURO-PHYSIOLOGY		GIF S/YVETTE91		MONTH-DAY-YEAR 04.21.81	
GROUP & FUNCTION							
RESPONSIBILITIES & NAMES HEAD OF SERVICE M. MAILLARD							
INSTRUMENT TYPE(S) 7854							
PRODUCT USE							
MEASUREMENT REQUIREMENT				CUSTOMER REACTION TO PRODUCT X			
REASON FOR PURCHASE				COMPETITIVE INSTRUMENT PERFORMANCE			
				CUSTOMER REACTION TO BUSINESS PRACTICES			

Val Garuts
 Marlow Butler
 Ralph Ebert
 Dave McCullough
 Lew Kasch
 Peter Schot
 Chuck Scott
 George Moppert
 Jim Cavoretto
 Al Peecher
 Bill Loveless
 Klaas Vogel
 Thor Hallen
 Mike Sisavic
 Riley Stock
 Dick Freshour

This customer is working on physiological signals (spikes). He needs to have time measurements between spikes :
 -amplitude
 -number of spikes
 -histogramm

He will buy 7854 for this, because :
 - He is afraid by bigger informatic, but GPIB on 7854 can ease the transition. He needs security, so giving him little package of programs fitting with his application will be a good help (histogramm, automatic measurement with cursors...).

- Digital memory with pre-trigger.
- Differential inputs.
- Signal processing : average, smooth, differentiate integral...)

BEAVERTON DATE STAMP
 RECEIVED
 JUL 14 1981
 LAB SCOPE MARKETING
 39-327

*Patrick
 Sounds like you found a
 good match between customers need
 and our product.
 Roger Loop
 Lab Scope mkt*

INTERNATIONAL MARKETING FIELD REPORT

CUSTOMER CII HB	FIELD ENGINEER / FIELD OFFICE P. JUNCA 080/EM/GR/28 <i>P. Junca</i>	BEAVERTON ROUTING
CITY & STATE / COUNTRY Les Clayes	MONTH-DAY-YEAR 09/23/80	Routed by Roger Loop Marlow Butler Ralph Ebert Dave McCullough Lew Kasch Peter Schot Chuck Scott George Moppert Jim Cavoretto Al Peecher Bill Loveless Klaas Vogel Ken Holland Jean C. Balland Mike Hurley Clark Foley Mike Mraz P. Junca Charlie Campbell File:
GROUP & FUNCTION Power supply lab		
RESPONSIBILITIES & NAMES M. ABRAHAM - Head of lab M. RENOULT - Engineer		
INSTRUMENT TYPE(S) WP 1310 7854		
PRODUCT USE	CUSTOMER REACTION TO PRODUCT	
MEASUREMENT REQUIREMENT	COMPETITIVE INSTRUMENT PERFORMANCE	
REASON FOR PURCHASE	CUSTOMER REACTION TO BUSINESS PRACTICES	

M. RENOULT is involved in complex power measurement in switching power supplies.

A live demo of WP 1310 made him and M. ABRAHAM convinced that 7854 is the scope they need because of his computing ability.

- Amp RMS direct measurement
- Peak and mean power
- Facility of fine balancing the transit time of either voltage and current probe.

First order : one 7854 box this year
Next year second one 7854 box and GPIB controller

*P. Junca
Very Good! power supply
the most popular
testing has been the 7854 so far.
application for
Roger Loop*

BEAVERTON DATE STAMP
7854 Applica V
7854 Applica X
Chron

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OCT 08 1980
CORPORATE MARKETING

FRANCE

MARKETING FIELD REPORT

109

Customer/Prospect UNIVERSITY OF QUEENSLAND	FE/Salesperson - Field Office PETER ROAN BRISBANE	Beaverton Routing
City & State/Country BRISBANE QUEENSLAND AUSTRALIA	Month-day-year 01-20-81	Routed by Clark Foley Marlow Butler Ralph Ebert Dave McCullough Lew Kasch Peter Schot Chuck Scott George Moppert Jim Cavoretto Al Peecher Bill Loveless Klaas Vogel Thor Hallen Jean C. Balland Mike Hurley Clark Foley Mike Mraz Peter Roan Brisbane File: 7854 Applicati Application A
Group & Function UNIVERSITY OF QUEENSLAND EXPERIMENTAL MINE		
Responsibilities & Names CAMERON MCKENZIE MINING ENGINEER		
Product Type(s) 7854		
Product use	x	Customer reaction to product
Measurement requirement		Competitive performance/pricing
Reason for purchase		Customer reaction to business practices

CAMERON WAS VERY INTERESTED IN DISCUSSING THE SUITABILITY OF THE 7854 FOR AN APPLICATION IN DIGITIZING AND PROCESSING DATA FROM BURIED TRANSDUCERS.

THE APPLICATION INVOLVED TAKING A SAMPLE OF THE SIGNAL WHICH WAS OCCURRING AT A REPETITION RATE OF 20ms DIGITIZING, STORING IN MEMORY AND DISPLAYING. SUCCESSIVE SAMPLES OF THE SIGNAL ARE TO BE AVERAGED AND THE DISPLAY UPDATED AFTER EACH AVERAGE.

THE ONLY PROBLEM WAS THE DEPTH OF MEMORY GOING TO BE NEEDED TO GIVE ACCURATE RESULTS HAD TO BE A MINIMUM OF 2K POINTS.

THERE BEING NO WAY THE 7854 COULD HAVE MORE THAN 1K POINTS PER WAVEFORM DISCUSSION CEASED AND CAMERON INDICATED THAT HE WOULD INVESTIGATE THE NORLAND AND NICOLET DPO'S.

Beaverton Date Stamp

RECEIVED

FEB 20 1981

CORPORATE MARKETING

*Peter what were the measurements that required 2K points? In other words more points/waveform do NOT mean more accuracy in all cases, I need more specific information please.
Roger Loop
for scope marketing*

[Handwritten signature]

INTERNATIONAL MARKETING FIELD REPORT

24

CUSTOMER
University Hospital

FIELD ENGINEER
Jim Uranwala

BEAVERTON ROUTING

CITY & STATE
London, Ontario CANADA

MONTH-DAY-YEAR
05/13/80

Routed By:
Roger Loop

GROUP & FUNCTION
EMG Lab - Biomedical Engineering

RESPONSIBILITIES & NAMES

Mark Davis - Biomedical Engineering

Marlow Butler
Ralph Ebert
Dave McCullough
Lew Kasch
Peter Schot
Chuck Scott
George Moppert
Jim Cavoretto
Al Peecher
Bill Loveless
Klaas Vogel
Ken Holland
Jean Claude Balland
Jim Uranwala
File: Chron
7854 App (0)

App'd

Product Type - 7854

7854 Opportunity

Mark saw an ad in Electronics for the 7854 and called me.

He sees the 7854 as ideal for EMG waveform analysis and will be pushing hard to obtain funds for one.

EMG's are important to doctors for many reasons (eg. reducing operating time/errors by pinpointing where to operate) and until now most labs have had to rely on slow human interpretation of strip chart recordings. Coming from a family of doctors and having had dealings with virtually every hospital in S.W. Ontario, I can state with some confidence that there is hardly an EMG facility that hasn't seriously pondered computerised EMG waveform analysis. For instance, while at HP, I sold a \$25K (U.S.) Data Acq. System for just that purpose. Also, at the Ontario Biomed. Assoc. meeting I hosted recently, many biometts stated they were designing micro based systems for that purpose.

The 7854's advantages in this area are (in order of priority):

- (i) Rise Time Measurement Capability
- (ii) Measuring area under waveform
- (iii) GP-IB (they would like a data base)
- (iv) Multiple waveform storage and comparisons
- (v) Averaging

Compared to conventional methods the 7854 is expensive but it is a very competitive current computerised alternative.

What's more, all the other usual waveforms (EKG, EEG, ECG, etc.) have virtually the same needs from an instrumentation point of view and the 7854 would be useful here too.

An application note, mailer and/or an ad in Biomedical magazines may be a profitable idea. In general, Biometts have widely varying instrumentation needs and mentioning the 7000 Series plug-in flexibility (especially differential input and microvolt sensitivities) can only help.

Every hospital should have a 7854.

*Thanks for the input.
Roger Loop mgr
7854 mKT prog mgr*

*← Safety Regs. very strict
if hard wired
RW*

CANADA

BEAVERTON

BR

MARKETING FIELD REPORT

7K

42

Customer/Prospect	FE Salesperson - Field Office	
s e v e r a l	Jean-Luc Desgraz Zug	Beaverton Routing
City & State/Country	Switzerland	Routed by Roger Loop
Group & Function	Month - day - year July 16 1980 eh	Marlow Butler
Responsibilities & Names		Ralph Ebert
Product Type(s)		Dave McCullough
		Lew Kasch
		Peter Schot
		Chuck Scott
		George Moppert
		Jim Cavoretto
		Al Peecher
		Bill Loveless
		Klaas Vogel
		Ken Holland
		Jean Claude Balland
		Jean-Luc Desgraz Zug
		File:
		Chron
		7854/Other

After one week demo tour with the 7854, I have collected the following comments:

Most people are impressed by the good performance / price ratio.

The main interest came from the R + D, closely followed by the test departments.

"User comments":

- a warning message should appear when the rise time is computed with less than ca 5 points on the leading edge.
- the trigonometry functions should be included in the calculator, in order to have a complete powerful instrument.
- a FFT hardware would have been appreciated, as much as an X-Y output.

Beaverton Date Stamp

RECEIVED
JUL 29 1980
CORPORATE MARKETING

Jean-Luc,
thanks for the info
Roger Loop
mkt product mgr

INTERNATIONAL MARKETING FIELD REPORT

CUSTOMER PLESSEY SEMICODUCTORS		FIELD ENGINEER GEORGE ALLEN	BEAVERTON ROUTING
ADDRESS CHENY MANOR, SWINDON, WILTS		MONTH-DAY-YEAR 3 9 81	Routed by Roger Loop
GROUP & FUNCTION		Val Garuts Marlow Butler Ralph Ebert Dave McCullough Lew Kasch Peter Schot Chuck Scott George Moppert Jim Cavoretto Al Peecher Bill Loveless Klaas Vogel Thor Hallen Jean Claude Balland Mike Hurley Clark Foley Mike Mraz Bob Bousquet Mike Sisavic George Allen	
RESPONSIBILITIES & NAMES MR. D. Tenty - DEVELOPMENT ENGINEER			
INSTRUMENT TYPE(S) 7854			
PRODUCT USE	<input checked="" type="checkbox"/>	CUSTOMER REACTION TO PRODUCT	
MEASUREMENT REQUIREMENT		COMPETITIVE INSTRUMENT PERFORMANCE	
REASON FOR PURCHASE		CUSTOMER REACTION TO BUSINESS PRACTICES	

They are looking for a automatic test and production system for testing fast ECC devices that they manufacturing at this site.

They currently test the parameters devices such as rise time up to 500 ps, propagation, delay etc.

They use Tektronix systems including :-

- T230 Digital Unit
- 214 Programmer
- 568 Scope with 355 and 3T5 Plus S2 heads

The above units are doing the job quite well but they require a more flexible programmable unit for doing the tests.

They were introduced to the 7854 and borrowed it on evaluation for a number of days including a 7S12 and 7S11.

Their conclusion was that the 7854 is not a replacement for the 568 system because the sampling units and plug ins are not programmable.

They require to make approximatley eight tests on one device and expect this to be accomplished in about one second this could only be done if the plug ins were programmable.

If the 7854 had been capable of replacing the 568 they would have purchased two systems initialy.

They asked if they could still purchase the 568 and if we made a GP-IB or more modern flexible control unit for the 568.

BEAVERTON DATE STAMP

File:
7854 Cust. Rea.
RECEIVED
MAR 23 1981
CORPORATE MARKETING

*George Allen
we are aware of these
kind of applications. I
am sorry we don't
have a 568/230 replacement
Roger Loop
Job Dept marketing*

MARKETING FIELD REPORT

JK

Customer/Prospect Inland Motors	FE/Salesperson - Field Office Bill Gray; Raleigh	Beaverton Routine
City & State/Country Radford, Virginia	Month-day-year September, 1980	Routed by Roger Loop
Group & Function		
Responsibilities & Names Rich Melton, Design Engineer		Marlow Butler Ralph Ebert Dave McCullough Lew Kasch Peter Schot Chuck Scott George Moppert Jim Cavoretto Al Peecher Bill Loveless Klaas Vogel Thor Hallen Jean C. Balland Mike Hurley Mike Mraz Clark Foley Bill Gray
Product Type(s)		(File: 7854 Applic
Product use	Customer reaction to product	Beaverton Date Stamp Application
Measurement requirement	Competitive performance/pricing	RECEIVED
Reason for purchase	Customer reaction to business practices	OCT 13 1980 CORPORATE MARKETING

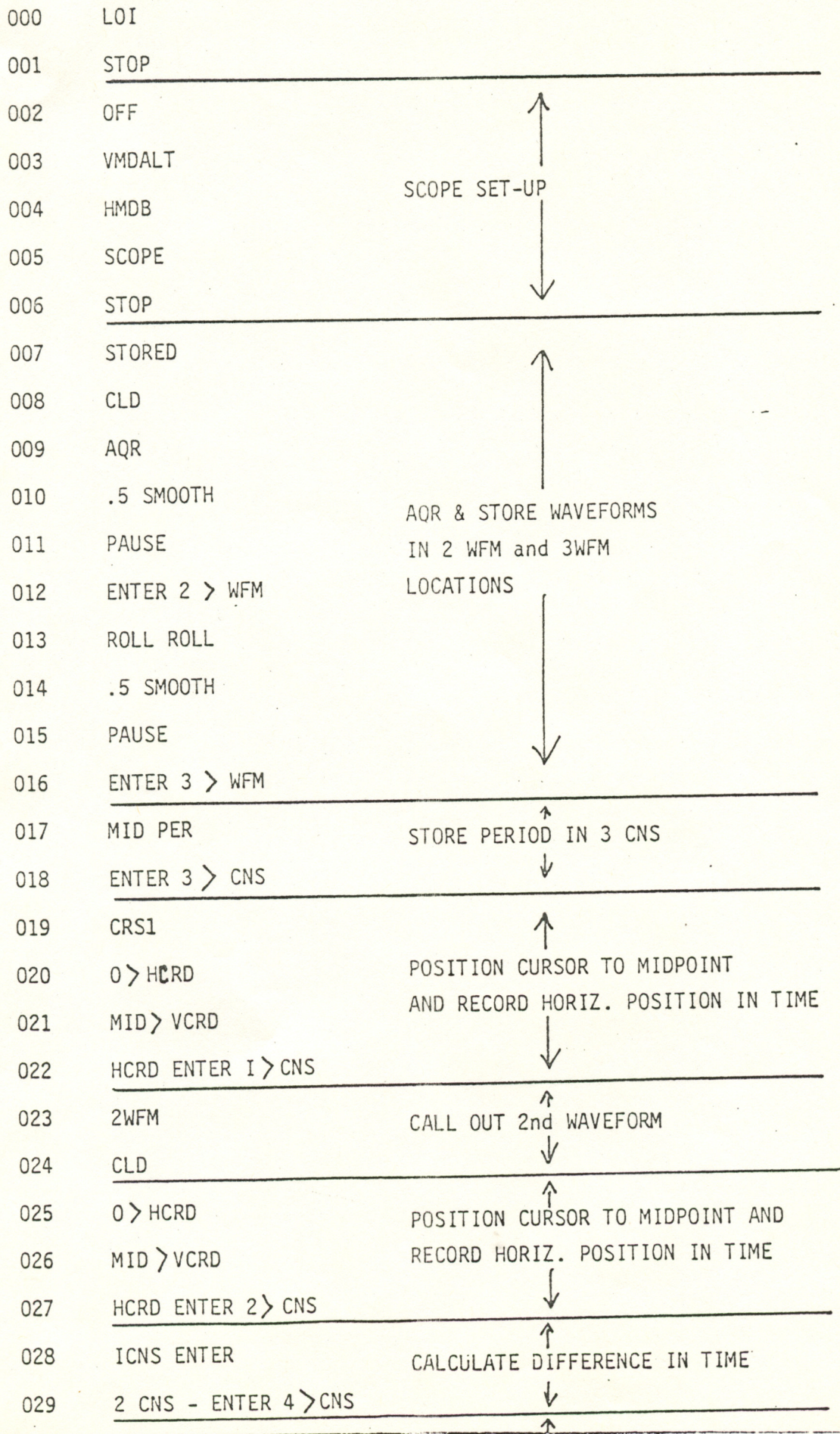
The product manufactured is Microprocessor controlled motor drives. I demo'd the 7854 to this customer about a month ago at which time it became evident that in order to sell the product a program had to be written to illustrate the advantages of the 7854. Consequently, I sat down and wrote a program to acquire two sign waves, measure the phase difference and the amplitude difference in DB between the two, and came up with the answers on screen along with both waveforms. I think this program can be adapted to many different uses in looking at phase angles between waveforms and amplitude differences in DB between waveforms. So, I am sending along a listing of the program and description of what each section of the program does. I hope this is of help to those of you trying to write software for the 7854.

cc: John Simmons; Atlanta
Bill Kladke; Atlanta

*Thanks Bill
I agree! Sometimes you must
write a program to illustrate
measurement feasibility, looks
like a good application of the 7854.
Roger Loop
Lab Scope marketing*

FEB 6 1981

LAB SCOPE MARKETING
38-127



028	1 CNS ENTER	CALCULATE DIFFERENCE IN TIME
029	2 CNS - ENTER 4 > CNS	↓
030	3 CNS ENTER 360/	↑ CALCULATES WHAT 1° IS IN TIME AND STORES IN 5 CNS
031	ENTER 5 > CNS	↓
032	4 CNS ENTER	↑
033	5 CNS/	CALCULATES AND DISPLAYS DIFFERENCE IN DEGREES AND STORES IN 20 CNS
034	OFF	↓
035	ENTER 20 > CNS	↓
036	2 WFM	↑
037	P-P	FIND AND RECORD PEAK TO PEAK VOLTAGE OF 2 WFM, STORE IN 10 CNS
038	ENTER 10 > CNS	↓
039	3 WFM	↑
040	P-P	FIND AND RECORD PEAK TO PEAK VOLTAGE OF 3 WFM. STORE IN 11 CNS
041	ENTER 11 > CNS	↓
042	11 CNS	↑
043	10 CNS	CALCULATE RATIO OF 2 PEAK TO PEAK NUMBERS
044	/	↓
045	ENTER	↓
046	LN	↑
047	10 LN	CALCULATE RATIO IN DB. STORE IN 21 CNS
048	/	↓
049	20*	↓
050	ENTER 21 > CNS	↓
051	20 CNS 21 CNS	↑
052	2 WFM	DISPLAY BOTH WAVEFORMS. DISPLAY PHASE IN Y REGISTER. DISPLAY DB IN X REGISTER
053	3 DSW	↓
054	OFF	↓
055	ROLL	↓
056	01 LBL GOTO	↑ RETURN TO BEGINNING OF PROGRAM AND STOP

57-317

MARKETING FIELD REPORT

1000

Customer/Prospect various		FE/Salesperson - Field Office John Whytsell-Newport News	Beaverton Routine
City & State/Country		Month-day-year 5-16-80	Routed by Roger Loop
Group & Function			
Responsibilities & Names			Marlow Butler Ralph Ebert Dave McCullough Lew Kasch Peter Schot Chuck Scott George Mopeert Jim Cavoretto Al Peecher Bill Loveless Klaas Vogel Ken Holland Jean Claude Ballan John Whytsell Chron 7854 application App (J) and (A)
Product Type(s) 7854			
Product use	<input checked="" type="checkbox"/>	Customer reaction to product	
Measurement requirement	<input type="checkbox"/>	Competitive performance/pricing	
Reason for purchase	<input type="checkbox"/>	Customer reaction to business practices	

7854
APP (J & A)

This USMFR represents customer inputs from 4 different demonstrations. I combined them into one report since all customers are manufacturers. The demos were done without a controller, and two of the customers presently use GPIB instruments.

Reaction to the product in all cases was overwhelmingly positive. In all cases, these customers had definite uses in mind until they saw the instrument perform. Capabilities of the instrument were so much greater than imagined that there was much discussion among the engineers present regarding many additional possible uses for the scope.

The two most often repeated positive comments were ease of operation and completeness of the manual. One customer couldn't seem to find all the GPIB information he wanted in the manual. (it turned out to be there, but it took a call to Beaverton to locate it as it was poorly indexed and labeled.)

Negative comments were lack of pushbutton FFT, and to a small extent, lack of programmability in plugins. The main complaint on programmability was sweep speed control on the time base.

One customer commented that regarding on board FFT, he suspects that Nicolet purchases a chip which probably makes some rash assumptions about the signal and produces a rather primitive transform. Sure sounds good.

Two Specific applications: *mechanical*
 One customer, Bendix Automotive Division, wants to do pressure/volume analysis in design of electronic fuel injection and anti-skid brake controllers. This analysis is currently done with hundreds of repetitive calculations and much graphing.

The other use is analysis of video waveforms containing test patterns. *Component Test*
 GE Television Division wants to use the scope to analyze TV component performance via base band video performance. In case of RF components, a demodulator would process the signal for the 7854.

Beaverton Date Stamp

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MARKETING FIELD REPORT

7000

Prospect various	FE/Salesperson - Field Office John Whytsell-Newport News	Beaverton Routing
Country	Month-day-year 5-16-80	
Function		
Responsibilities & Names		
Product Type(s) 7854		
Product use	<input checked="" type="checkbox"/> Customer reaction to product	
Measurement requirement	<input type="checkbox"/> Competitive performance/pricing	
Reason for purchase	<input type="checkbox"/> Customer reaction to business practices	

My personal opinion is that it is important to continue to expose the instrument to potential customers because it's capabilities simply have to be seen to be appreciated. Regardless of what the prospective customer thinks he wants to do, once he sees a good demo, pure creativity will determine ultimate usage.

I agree! The 7854 is limited by ones imagination more than its capability.

*Open Loop
7854 mkt program mgr*

P.S. I would like to talk to you some time regarding the applications you mention.

Beaverton Date Stamp

APPROVED
JUN - 5 1980
TEK-DVTM

INTERNATIONAL MARKETING FIELD REPORT

JK SPS

CUSTOMER M.S.D.S.		FIELD ENGINEER Robert Whiting		BEAVERTON ROUTING	
ADDRESS Chaucer House, Portsmouth			MONTH-DAY-YEAR 10 2 80		
GROUP & FUNCTION Automatic Test System Evaluation Group				Routed by Roger Loop Marlow Butler Ralph Ebert Dave McCullough Lew Kasch Peter Schot Chuck Scott George Moppert Jim Cavoretto Al Peecher Bill Loveless Klaas Vogel Thor Hallen Jean Claude Ballanc Mike Hurley Clark Foley Mike Mraz Charlie Campbell Robert Whiting File: 7854 Appli. Applica A	
RESPONSIBILITIES & NAMES Mr. Bob Wendes Mr Alan Lamb					
INSTRUMENT TYPE(S) 7854					
<input checked="" type="checkbox"/> PRODUCT USE	<input checked="" type="checkbox"/>	CUSTOMER REACTION TO PRODUCT			
<input checked="" type="checkbox"/> MEASUREMENT REQUIREMENT	<input checked="" type="checkbox"/>	COMPETITIVE INSTRUMENT PERFORMANCE			
<input type="checkbox"/> REASON FOR PURCHASE		CUSTOMER REACTION TO BUSINESS PRACTICES			

Mr. Bob Wendes and Mr. Alan Lamb of Marconi Space and Defence Systems had demonstrations of the 7854/WP1310 system. Though both working on the same project (a heavy weight torpedo) Mr Alan Lamb was based at Scotland.

Both parties were impressed with the capability of the 7854 especially its ability to make measurements repetitively and operation on IEEE 488 bus. Also they were pleased to see the familiar 7000 series layout as they currently use many through-out the Marconi organisation.

Mr. Wendes had seen the new H.P. 1980 but commented about its performance not being all that was required in terms of bandwidth and digitising speed. He also was concerned about its reliability which may suggest the demonstration he had, did not go well.

Marconi expect to order at least 13 7854 systems in January 1981 which may increase to 20 if another requirement can be confirmed in the same order.

This other project is known as stingray which is a lightweight project just going into production.

BEAVERTON DATE STAMP

RECEIVED

DEC 02 1980

CORPORATE MARKETING

*Robert
Sounds Great! what was
their reaction to not having
programmable plug ins.
Roger Loop
Job Scope marketing*

FEB 0 1981

INTERNATIONAL MARKETING FIELD REPORT

CUSTOMER TEAM	FIELD ENGINEER / FIELD OFFICE JEAN CLAUDE AVANDET	N° 268	BEAVERTON ROUTING
CITY & STATE / COUNTRY IVRY 94	MONTH-DAY-YEAR 01 08 81		
GROUP & FUNCTION RESEARCH			
RESPONSIBILITIES & NAMES ENGINEER M. ROCHARD			
INSTRUMENT TYPE(S) 7854			
PRODUCT USE	CUSTOMER REACTION TO PRODUCT		
MEASUREMENT REQUIREMENT	COMPETITIVE INSTRUMENT PERFORMANCE		
REASON FOR PURCHASE	CUSTOMER REACTION TO BUSINESS PRACTICES		

Routed by Roger Loop

Val Garuts
Marlow Butler
Ralph Ebert
Dave McCullough
Lew Kasch
Peter Schot
Chuck Scott
George Moppert
Jim Cavoretto
Al Peecher
Bill Loveless
Klaas Vogel
Thor Hallen
Jean C. Balland
Mike Hurley
Clare
Mike Mraz
BE BOSS 1081
Mike Sisavic
CORPORATE MARKETING

BEAVERTON DATE STAMP

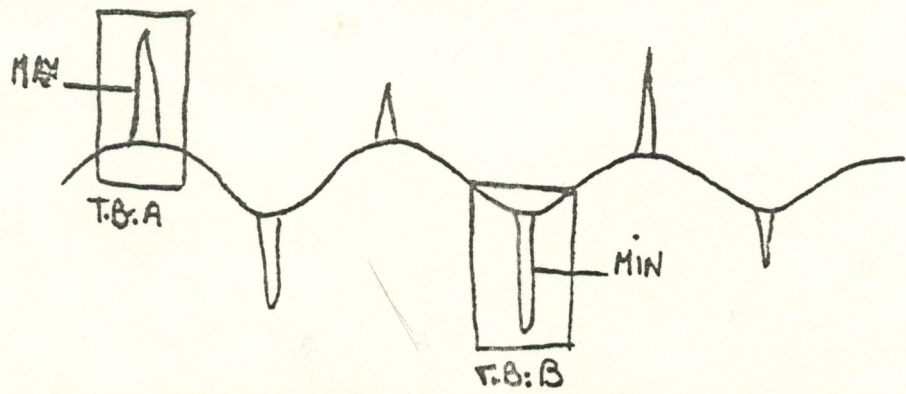
Jean Claude
 we hope to capture many
 sales opportunities in testing switching
 power supplies. Roger Loop
 lead sales marketing

M. ROCHARD is the control quality responsible of switching power supplies sold in military domain. He needs an oscilloscope in order to do automatic testing of these power supplies.

The test was PP measurements of ripple, 7854 was demoed with two time bases in ALT mode with 1024 bits resolution.

The first T.B : A trigg on the higher positive pulse permitting to obtain the max voltage value and the second T.B : B trigg on the lower negative pulse for the min. voltage value.

A short programm gives the max + min. In this form we obtain 0,5 mV resolution.



H.P. 1980 was competitively demoed on this application but it not permitt such a 0,5 mV resolution because :

- loss of digital memory => difficulties to see the good pulse
- difficulties to trigg on the lower or. on the higher pulse (some pulses have different voltage valves at different time)

M. ROCHARD was very enjoyed by easy to use with the 7854 but he regrets :

- the price compared to HP (he possed calculator)
- the loss of rack option (very important in this domain)
- the delivery delay (to day, if he orders, he must be operationnal on may 1982)

FRANCE

INTERNATIONAL MARKETING FIELD REPORT

CUSTOMER Marconi Research Labs		FIELD ENGINEER Brian Curant		BEAVERTON ROUTING	
ADDRESS Gt. Baddow		MONTH-DAY-YEAR 12.10.80		Routed by Roger Loop	
GROUP & FUNCTION Telecomms. Group					
RESPONSIBILITIES & NAMES Mr. Perry					
INSTRUMENT TYPE(S) 7854					
PRODUCT USE		X	CUSTOMER REACTION TO PRODUCT		
MEASUREMENT REQUIREMENT			COMPETITIVE INSTRUMENT PERFORMANCE		
REASON FOR PURCHASE			CUSTOMER REACTION TO BUSINESS PRACTICES		

- Val Garuts
- Marlow Butler
- Ralph Ebert
- Dave McCullough
- Lew Kasch
- Peter Schot
- Chuck Scott
- George Moppert
- Jim Cavoretto
- Al Peecher
- Bill Loveless
- Klaas Vogel
- Thor Hallen
- J. C. Balland
- Clark Foley
- Mike Mraz
- Bob Bousquet
- Jim Geissinger
- Mike Sisavic
- Riley Stock
- Dick Freshour

During a discussion with Mr. Perry on the 7000 series, we started talking about the 7854. His interest was for a fast general purpose oscilloscope, and the prospects of digitizing the output was very attractive. However, the poor slow single shot digitizing speed was not sufficiently good for his requirements.

Discussions on the 7612 and the 7912 showed these instruments to be too expensive for his application. In discussing other possibilities it came to light that the ideal requirement would be 7854 with single shot digitizing capability similar to the 468.

Ideally therefore, Mr. Perry wanted a 7854 with the 25 MHz sampling rate in the 7000 series format. His main concern was that within the next year or so we would be updating the existing 7854 to have a faster A/D converter.

BEAVERTON DATE STAMP
 File: 7854 Cust. Rea.
 Brian Curant
 RECEIVED
 APR 14 1981
 CORPORATE MARKETING

MAY 13 1981

Brian
 The single shot rate of the 7854 will not & can not approach that of the 468. The 468 will never be able to approach the 400 MHz of the 7854. We are aware of the need for a product like the 7854 with better S.S. capability. If we do something it will have to be a different technology than either the 7854 or 468. Thanks for the input.
 Roger Loop
 Ed Lopez MKT.

MARKETING FIELD REPORT

5K/1K/400/BS

Customer/Prospect	FE/Salesperson-Field Office	Beaverton Routing
Texas Instruments	Morris Jones - Dallas	

City & State/Country	Month-day-year	Routed by Roger Loop
Dallas, TX	December 1, 1980	

Group & Function	Marlow Butler
Semi-conductor group - power transistors	Ralph Ebert
	Dave McCullough

Responsibilities & Names	Lew Kasch
Joe Mings - Manager	Peter Schot
	Chuck Scott

Product Type(s)	George Moppert
7854 - 7S12 - 7S11 - S3A - S53 - 465B - 4924	Jim Cavoretto
	Al Peecher

Product use X	Customer reaction to product.
Measurement requirement	Competitive performance/pricing
Reason for purchase	Customer reaction to business practices

Power Transistor Switching Time Measurements

Joe has a requirement to measure the turn-on and turn-off characteristics of power transistors. He will be purchasing a 7854 based system for this application. The total price will come to approximately \$26K.

The waveforms involved are shown in Figure 1.

Typical Times are:

- Time Delay - 40 Nanoseconds
- Time Rise - 100 Nanoseconds
- Time On - 140 Nanoseconds
- Time Storage - 1 Microsecond
- Time Fall - 100 Nanoseconds
- Time Off - 1.1 Microsecond

The set-up shown in Figure 2 was used to demonstrate our capability with the 7854/7S12.

The 465B facilitates triggering the 7S12/S53 at the occurrence of either "Time-On" or "Time-Off." The 465B is operated in the "A Intensified" mode. T.B. A is set to approximately 5 microseconds and T.B.B. to .2 microseconds. The delay control is adjusted until the desired transitions are centered on the 7854 screen.

The two PG508's are used to simulate the input and output pulses. Both are operated in the delayed mode. The trigger output from #1 provides the input pulse to the 7S11 and triggers #2. The output from #2 is inverted and represents the transistor output.

Beaverton Date St

RECEIVED
JAN 05 1981
CORPORATE MARKETING

RECEIVED
FEB 6 1981

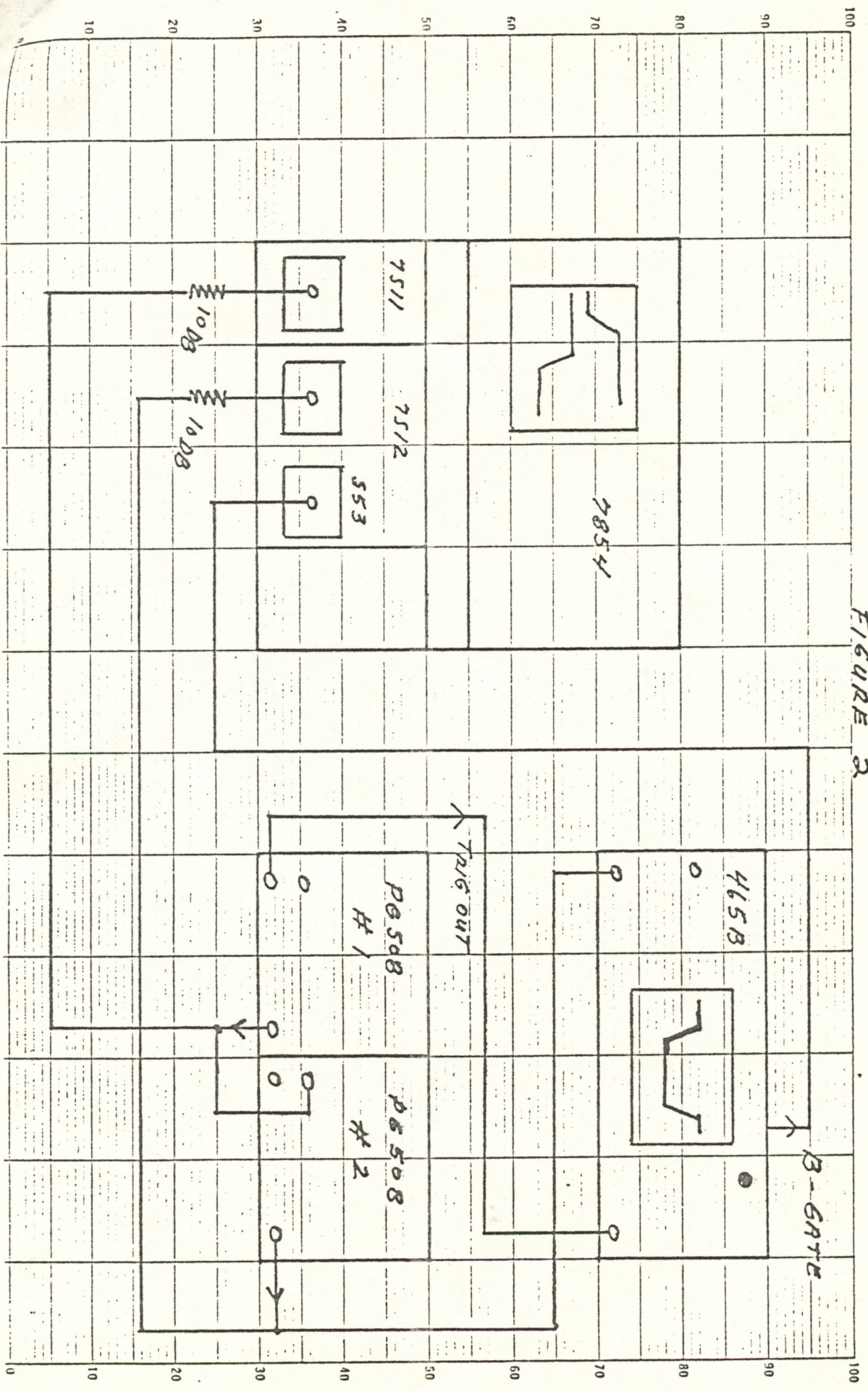


FIGURE 3

FIGURE 3

0.	LNN 01
1.	CLD
2.	.1 Enter 3>CNS .9 Enter 4>CNS
3.	3 LBL GSB
4.	10 > CNS
5.	1 WFM Rise 11 > CNS
6.	10 CNS 11 CNS + 12 > CNS
7.	2 DSW
8.	10 CNS Pause Pause Pause Pause
9.	11 CNS Pause Pause Pause Pause
10.	12 CNS Pause Pause Pause Pause
11.	Stop
12.	LNN 02
13.	CLD
14.	.9 Enter 3>CNS .9 Enter 4>CNS
15.	3 LBL GSB
16.	13 > CNS Off
17.	1 WFM Rise 14>CNS
18.	13 CNS 14 CNS - 15>CNS
19.	2 DSW
20.	15 CNS Pause Pause Pause Pause
21.	14 CNS Pause Pause Pause Pause
22.	13 CNS Pause Pause Pause Pause
23.	Stop
24.	2 LBL GoTo
25.	LNN 03
26.	Scope VMDCHP HMDA
27.	AQR 2>WFM Stored
28.	3 CNS 2>CNS 4 LBL GSB
29.	1>CNS 1 WFM 0>WFM
30.	4 CNS 2>CNS 4 LBL GSB
31.	1 CNS - RTN
32.	LNN 04
33.	Off 0WFM PP/MIN -
34.	CRS 1 0 > HCRD 2 CNS>VCRD HCRD RTN

program for the 7854 is listed in Figure 3. the procedure to make measurements is as follows:

- 1) Set 7854 to scope, VMCHP, and HMDA.
- 2) Set 7S12 T.B. to 50 Nanoseconds.
- 3) Using the 465B and the PG508's, set up the desired pulse characteristics for the input and output pulses. Reconnect as shown in Figure 2.
- 4) Adjust the S53 trigger level for a properly triggered display on the 7854.
- 5) Adjust the 465B delay control until "Time-On" is centered on the 7854 screen.
- 6) Enter the 7854 program.
- 7) To run the "Time-On" program, push f start. Following the measurement, delay time is displayed for 2.8 seconds. This is followed by rise time and time-on, both being displayed for 2.8 seconds. Pushing start again will repeat the program.
- 8) To make the time-off measurement, return to scope mode on the 7854. Set the 7S12 T.B. to 200 nanoseconds. Position the time-off transitions to the center of the 7854 screen with the 465B delay control. Push run. At the completion of the measurement, storage time will be displayed for 2.8 seconds, followed by fall time and time-off.

He will use the 4924 to store the program. He will use a T.I. built test fixture to power the transistor and provide additional power amplification for the input pulse. His pulse source will be the H.P. 4B (100 volts).

Any of our sampling heads can be used for the demonstration. Joe will use the S3A's in his system.

This was my first opportunity to use the 7854/7S12 in a switching time application within T.I. They have depended primarily on the 568/230 for these types of measurements in the past.

Real time plug-ins can be used in the 7854, but acquire time is much longer. Acquire time using the 7S12 is approximately 3 seconds for 1 KHZ repetition rate and 50 nanoseconds per division. Using real time plug-ins, this is increased to approximately 30 seconds.

Morris
Thanks for the info. Component
Testing is a strong application for
The 7854 as you have found out here.
Good work. Roger Loop
Lab scope marketing

DATE: 2/1/82

SE: Bill Davis

FO: Houston

MEMER:

Company: Texaco
City/State: Houston, Texas
 Group/Function: Research/Maintenance Methods
 Name/Responsibility: _____
 Product Types: Lab Scopes

MARK ONE ITEM

Industry: Computer
 Communications
 Govt/Mil/Aero
 Consumer
 Industrial Elec.
 Medical
 Automotive
 Semiconductor
 Education
 Other Oil/Industrial

MARK ONE ITEM

Function: Research
 Product Devel.
 Production Test
 Serv. Center/Cal Lab
 Field Service
 Other

RESPONSE CATEGORY (MARK ONE)

Needs Management Attention
 Needs reply to me
 Info only
 Competition

MARK ONE ITEM

Purpose:

Feedback of products: Tek or competitive
 Competitive info: Prototypes seen, acceptance of new products, serial numbers with date of acquisition
 Future product needs or customer needs not currently satisfied
 Future measurement trends
 Lost order evaluation
 Effects of pricing, terms, conditions
 User feedback (via SE)
 Market problems
 AE feedback
 Unusual use or application
 Other _____

Comments:

7854 Customer Reaction

RE: FFT CAPABILITY ON 7854

The Norland 3001 and the threat of the Data Precision Data 6000 are affecting the medium-low frequency market place where the oil and mechanical/vibration industries are concerned. Specifically, the built-in FFT function gives those boxes a strong functional advantage against the 7854 while they hold a cost advantage against the WP1310. The addition of that capability as an option on the 7854 (possibly deleting some lesser used keys or functions) would strengthen the 7854's position as a very "smart scope."

Bill: Thanks for the info! For lower frequency applications that are price sensitive, we have been recommending the 5223. The FFT has been demonstrated successfully (elsewhere in the U.S.) with a 5223 and 4052. However, there are no plans to develop a WP product. Perhaps your A.E. can be of assistance.
Gary Kirchberger
2/11/82

7000 Series Marketing
Field Report Dist.
List

- Val Garuts 39-111
- Farlow Butler 50-274
- Ralph Ebert 74-115
- Dave McCullough
- Peter Schot
- Chuck Scott 39-049
- Jim Cavoretto
- Al Peecher 39-740
- Bill Loveless
- Klaas Vogel EMC
- Thor Hallen 39-111
- Mike Sisavic Y3-245
- Dick Freshour 53-108
- Jack Lyngdal 39-615
- Walt Ventgen 47-143
- Mike Hurley 51-244
- Jim Koehn 51-304
- Bud Nelson 54-074

Route Dave's copy to
all 5K/7K personnel

Copies to:
DSM
RSM
ID Mktg Admin 51-304

Tektronix
COMMITTED TO EXCELLENCE

FEB 8 1982

LAB SCORE MARKETING

Riley Stock
Tom

TEK INTER-OFFICE COMMUNICATION

TO Don Squires
FROM Clark Foley
SUBJECT Visit to IBM in Lexington, Kentucky

DATE May 7, 1982

Don,

The purpose of this IOC is to present a summary of the discussions involving engineers at IBM in Lexington, Kentucky, Shel Shapiro, Jack Higgins, Corey Hirsch, and me. Beside analyzing IBM's immediate needs, Corey and I gathered some information which may be of use for future product planning. I will provide details to the product planning group later.

The intent of the visit was to explore alternative solutions to immediate measurement needs, to gain some insight into their near future (2 to 3 years), and to offer or propose some practical approaches to pursue.

Essentially, three major IBM groups were represented: Mechanical Evaluation Engineering, Electrical Evaluation Engineering, and Production Testing. There were a couple of other individuals from other areas present, but the discussion was directed toward the three areas just listed.

The primary application was dealing with digital control hardware (uP, etc.) in conjunction with a servo mechanism (dc motors). On the surface, such an application conjures up the traditional expectation of being very low frequency and perhaps not very sophisticated. Nothing is further from the truth with IBM.

The source of the problem begins with the dc motor. The mechanical evaluation engineer, Lowell Siders, is plagued with problems relating to the operating characteristics of what is believed to be a linear device, the dc motor. Mr. Siders is painfully aware that it is not linear under his operating conditions. In order to optimize the mechanical design for efficiency while maintaining high reliability, Mr. Siders must be able to mathematically predict the dc motor's behavior. To do this, he is trying to fully characterize the dc motor to create an accurate mathematical model.

Another problem is the dealing with the electrical properties and non-linearities of this dc motor. This concerns the Electrical Evaluation engineer, Phillip Justice.

Mr. Justice is concerned over the digital control hardware and its drive characteristics (e.g. energy, power, etc.). Because of the motor's non-linearities, the power consumption exceeds what was predicted under certain conditions. This problem is compounded in that he has been given a limited amount of power from the power supply designers. In order to calculate the needed power requirements, he must depend upon Mr. Siders to accurately characterize the dc motor. Consequently, the voltage and current changes are happening much faster than the mechanical phenomenon, yet they must be monitored simultaneously. For the modelling,

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the 4 signals required are Velocity, Force of impact, voltage, and current. The event is transient and takes place over interval of $\approx 100\text{ms}$. To capture the subtle features and relatively high speed signed components, a 100 ns/pt sampling rate is required. This dictates 10^6 data points per trace. By the way, they want 10 bits of vertical resolution. Corey and I immediately pursued alternative ways to capture the needed information. 10MHz

The last area of concern was in manufacturing test. Rainy Fritz needs to verify numerous specifications in the range of 3% to 5%. These involve many of the same signals as previously described. To have confidence in his measurements, he needs a tool which is 10 times more accurate. His testing does not require the enormous record length which the engineers are using. He believes 2K points per trace, 4 traces simultaneously, are needed. One thousand points are marginal to unacceptable and four thousand points per trace would be great. Of course, a 100ns/pt digitizer is required and a 50ns/pt digitizer would buy a little insurance for next year's projects. One comment which Rainy made was something like, "analog (meaning control mechanisms) is catching up with the digital world's speeds . . ."

All three areas had some similar requirements. They want to build a data base of engineering experiments as well as for every device tested in manufacturing. Each measurement station in manufacturing and engineering must be mobile. Up to the size of a 3-foot tall rack on wheels is acceptable. Since its mobile, plus doubts about the reliability of their phone systems, a hard wire networking to a central data base and processor is impractical. Therefore, each station needs a mass storage device.

A magnetic medium such as a disc is desirable; however they must be able to save or recall test/experiment data in less than 2 seconds per waveform. If a disc is used, it must take less than 5 minutes to initialize a fresh disc and be compatible or readable into one of their computers without committing an entire measurement system to serve simply as a data translator. The measurement process itself is very display or visually intensive. They need to view and compare previous results at each station using X-Y and Y-T, with the ability to independently reposition each waveform vertically and horizontally. In addition, on board processing is required to reduce data and provide immediate measurement answers. The specific processing features must include all of the 7854 functions plus frequency domain, convolution, trigonometric, polar and rectangular operations. The minimum sampling rate must be 100 ns/pt; next year it will be 50ns/pt, and after two years 20ns/pt may be required (at 10 bits vertically at $\leq 0.3\%$ error, of course).

The mobile instrumentation must be easy to use, such that infrequent users will not require extensive training. Unattended measurements sounded interesting to this group but it is not a significant factor in their choice of instrumentation.

In pursuit of some measurement alternatives, the discussion of trigger discrimination came up. In that, rather than creating extremely long records, the trigger discrimination would be capable of analyzing characteristic of the event itself (e.g. width, freq etc.) or looking for a specific combination and sequence of many events.

Action Taken

It was obvious from our discussions that these customers were not at all aware of SPS products. Corey proceeded to explain the processing power of SPS Basic. Mr. Siders, who is the most influential, was very impressed and wanted to know more about what SPS could offer.

Corey and I discussed various methods for acquiring waveforms. The Sony/Tek 390AD is Tek's best fit for their application, coupled with a controller for the mobile stations. Another digitizer may be necessary in addition to the 390AD.

For example, the 5223 can be useful for capturing a record representing the entire time of the experiment serving as a "macroscopic" reference, where the 390AD can be used to record high speed segments for a "microscopic" view of the event.

Once the information is acquired and saved on disc, it would be taken to a central work station for incorporating it into the data base as well as for further processing. This station would be a SPS system capable of supplying all of the computational and programming requirements as well as producing high quality graphics for written reports.

The next step to take with IBM is to introduce them to the total capabilities of SPS. Following that, an evaluation of TEK digitizers in this application is required.

TEK's strength lies in its processing and graphics capability for the central station, while we are lacking in an appropriate digitizer, mass memory and on board processing for the mobile stations. IBM has many NORLAND 3001's but are not terribly pleased with them. They are very interested in Data Precision's DATA 6000 but have not been formally introduced to it yet.

I believe that through a demonstration of SPS capability with the promise of the 390AD, IBM will buy from TEK. However, these people clearly stated that they will buy whatever they can find which will solve their problems. They don't care who supplies it!

Attached is an outline of remaining action items, persons responsible, and the dates involved.

Regards,

Clark Foley
Clark Foley

CF:is

Attachment

cc: Dave McCullough	Shel Shapiro
Bill Loveless	Jack Higgins
Bob Johnson	Earl Music
Corey Hirsch	Bill Lewis
Doug Goodman	Riley Stock

*Copy: P. Schott
H. Nalson
J. Cavoretto
Return orig
WJA 6/15/82*

TO: Bill Loveless

DATE: June 15, 1982

FROM: Bob Orwiler

SUBJECT: New Hardware for Waveform Processing

RE: Your comments about new product plans.

Bill:

Comments that I am building for this response are directed toward oscilloscopes, but would also apply toward other products that could be considered for waveform acquisition and processing.

1. These should contribute efficiency to a process.
 - a. One method would be to reduce manhours for given measurements.
 - not at* → b. M.T.B.F. should be high -- my figure would be 15,000 hours.
 - c. Calibration times in excess of 30 minutes are now, by my customer, defined as excessive, and considered reason to search for an alternate vendor.
 - d. Calibration interval of two (2) years.
 - e. Should be bus compatible, at the moment GPIB, but probably should have other bus capabilities as well.
2. Meet "systems" requirements. To meet my customers need, 40% of your sales will be a "systemizer" - whether that "system" be manual or programmable.
 - a. Utilize as little vertical rack as possible. For an Oscilloscope, which includes a CRT, 5 1/4" is considered reasonable. A lower performance scope would be used if it could save 1 inch or more. KEEP RACK HEIGHT DOWN. For an Oscilloscope which does not include a CRT, 3 inches would be considered reasonable.
 - b. Depth of the hardware beyond 21 inches including the power cord or any other protuberance, would be excessive.
 - c. Width - there is no general advantage to less than full rack width.
 - d. Make rackmounts rugged. The majority of rackmount applications are in some type of vehicle. Probably most of these are vans. Next would be ship hulls.
 - 1) 30 gs shock minimum
 - 2) use as reference - MIL-T-28800

*VERY IMPORTANT
GOVT/ARMIES*

- a) prefer III, 3, F
- b) sometimes acceptable - III, 5, E or F. There would need to be a clear performance advantage in other parameters for the specific application.
- e. Inputs in the rear meet the same performance as inputs in the front panel.
- f. Auto cal and diagnostic routines made available.
 - 1) no additional memory required.
 - 2) assume the user will not repair or calibrate the unit.
 - 3) the diagnostic routine should be to looser specifications than the calibration certifications.
- g. Input Impedance
 - 1) 250 mhz or less would be selectable 1 meg ohm and 50 ohm with an option for 1 meg ohm only.
 - 2) 300 mhz to 500 mhz would be selectable 1 meg ohm and 50 ohm with an option for 50 ohm only.
 - 3) above 600 mhz - 50 ohm only.
- h. CMRR
Dual inputs on 250 mhz or less would be 15,000: 1 on X or Y.
- i. Specifications referred to CRT to utilize total graticule area, such as:
 - 1) timing from 0 to 10 vice' 1 to 9.
 - 2) spot roundness around outer perimeter vice' inner 10%.
- j. Specify performance at probe tip or at rear input connector.

Comments:

1. If you intend to include a CRT, why not incorporate the most used con- controls as a CRT, prompting, touch panel?
2. The U.S. Navy continues to have a storage measurement that can be categorized as follows:
 - a. pulse 300 ms wide
 - b. fastest PRT 600 ms, slowest 2 minutes with random variations to single event.
 - c. $T_r = 10$ ns.
 - d. measure the time, pre-shoot, over-shoot and first 40 ns. of aber- rations.

Digital storage just won't hack it!!!

Egoivalent Time Pretrigger with Breakpoints will!!

3. Bill, you gave me such a limited time to respond that I know I'm leaving important items hanging. Please allow me to send additional comments within the next 60 to 90 days.

Summary

*
We are the Worlds leader in Oscilloscopes. We should be, I feel, the Worlds leader in Test Measurement and Diagnostic Equipment (TMDE). We can only gain, (or maintain for that matter), through technological superiority. Ergo, everyone should find our specifications difficult to match and impossible to exceed. We should give full consideration to our customers needs while doing this. One of these needs is for rackmounted TMDE. In my view, 40% of manual and 70% of programmable 7000 Series is the rack market. Ergo, we should consider the peculiar needs of this market. We do this by minimizing the vertical dimension and making the rack version quite rugged, e.g., MIL-T-28800 III, 3, F.

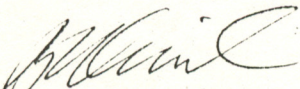
There certainly are requirements other than rackmounts.

To be the technological leader would call for those other items I have listed as minimal needs. Pay attention to cal time; pay attention to M.T.B.F.; pay attention to calibration interval. We should be productive and we should sell productivity!

It appears to me that a board 17 inches square should handle most of our oscilloscope circuitry; that most of the operator controls could be delegated to a "touch panel" on the CRT; that 5½" height should give plenty of volume for circuitry and plenty of area for inputs.

Finally, if we could incorporate the suggestions I have made and those I will offer soon, we can be the only supplier of this type oscilloscope to U.S. military programs through 1995.

Best regards,


Bob Orwiler

BO/11

cc: File

*Copy P. Schri
G. Malloy
J. Cavonetto
Return
only
WFR 6/18*

TO: Bill Loveless 39-327

DATE: 18 June 1982

FROM: Newt Coyle Air Force Account Manager

SUBJECT: Government Market Needs

This is a follow up of our recent discussion at Key West.

Rackmounted instruments are used in small and large systems. These are always cramped for space whereas they should take up as little vertical space as possible. Ideally, they should be 5 1/4 inches high since this seems to be more common. A 3 inch full rack width is preferable to a 7 inch half rack.

For our market the below listed features are now or will in the future be mandatory:

- High - 5 1/4" or less *Shoot for the stars & hope*
 - MTBF - 15,000 hours *FOR THE MOON. NEEDS LOTS OF COOLING. J.L.*
 - Internal diagnostics
 - longer recommended cal time *NUMEROUS*
 - Specifications listed in accordance with Mil T 28800
- ↑ FUTURE ?
← NOW

Regards,

Newt
Newt
"AIR FORCE" INPUT

NC/gk

*What is the DATA (\$) TO BALANCE THE HEIGHT DECISION?
J.L.*

FROM Ken England
SUBJECT NEW PRODUCT CONSIDERATIONS
TO Bill Loveless

June 21, 1982

HUNTSVILLE

Copy sent to P. Seltzer, H. Hallen, J. Cavonius

Review on 16 WOK.

He input from the Army !!

Bill,

As we discussed in Florida, there are certain considerations for any new product that will positively affect our success in the Military Market. For your Business Unit, I believe these considerations are :

RACKMOUNT HEIGHT - Preferred 5 1/4" MAX 7 1/4"

For the New Market height is not as important, but users obviously would prefer less than 7 1/4" to conserve rack space.

For the Replacement Market the available space is fixed by the item being replaced -

- 565 at 12 1/4"
- 7K Series at 5 1/4" ✓
- 7844/7612 at 7 1/4" ✓
- 5K Series at 5 1/4" ✓
- AIL 505 at 10 1/4"

COOLING - Intake cool air through front panel exhaust at rear.

ANTI-MATE g

DEPTH - 22" - 25" 7K should be OK. Just (5K Series now used by Metrology because 7K Series would not fit) ?

REAR INPUTS - Definitely Required!

POWER REQUIREMENTS - Same as R7603 Opt. 05

PERFORMANCE VERIFICATION - Executed at turn on automatically or by operator on demand.

AUTO - CAL - Utilization of internal buss to speed up and simplify calibration and maintenance. Our tendency is to provide this for our internal manufacturing and service organizations without concern for its value to Military and large customers.

MTBF - 3000-5000 Hrs now acceptable with Military shooting for ≥ 10K Hours.

MTBC - Extending calibration intervals to >2 years will be a definite advantage.

MITC - Reduction of calibration time and level of expertise required to calibrate would be a definite advantage.

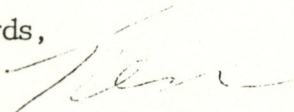
MITR - Utilization of instrument smarts to reduce repair time and level of expertise required would be advantageous.

FRIENDLINESS - Making everything variable is nice for the R&D Labs, but terrible for the Military. The 7D20 is a step in the right direction.

OTHER - Per Mil-T-28800 Class IV
Noise emissions per Mil 461B

Bill, these inputs represent a consolidation of the Security Community, Army Metrology at Redstone Arsenal, various military programs, but does not represent Air Force or Navy.

Regards,



Ken

TKE:gj

DATE: 3-23-82

CUSTOMER:

SE: Don Bridge

FO: Cleveland

- Company: Lortec Power Systems
- City/State: North Ridgeville, Ohio
- Group/Function: Engineering
- Name/Responsibility: Howard Bolray-Chief Eng.
- Product Types: 5223

MARK ONE ITEM

- Industry:
- Computer
 - Communications
 - Govt/Mil/Aero
 - Consumer
 - Industrial Elec.
 - Medical
 - Automotive
 - Semiconductor
 - Education
 - Other _____

MARK ONE ITEM

Purpose:

- Feedback of products: Tek or competitive
- Competitive info: Prototypes seen, acceptance of new products, serial numbers with date of acquisition
- Future product needs or customer needs not currently satisfied
- Future measurement trends
- Lost order evaluation
- Effects of pricing, terms, conditions
- User feedback (via SE)
- Market problems
- AE feedback
- Unusual use or application
- Other _____

MARK ONE ITEM
Function:

- Research
- Product Devel.
- Production Test
- Serv. Center/Cal Lab
- Field Service
- Other _____

RESPONSE CATEGORY (MARK ONE)

- Needs Management Attention
- Needs reply to me
- Info only
- Competition

Comments:

Lortec recently cancelled an order for a 5223 opt, 10 and ordered a Data Precision 6000. Three channel operation was the main reason for ordering a 5223 since it was necessary to view the output voltage of a three phase U.P.S. The following is a list of Data Precision's features important to the customer:

1. 14 Bit A/D
2. 8 Bit/100MHz (future application)
3. FFT (future application)
4. Memory Size (up to 56K)
5. RMS/energy keys
6. GPIB Interface
7. Price:
 - a. Mainframe - \$4995
 - b. 14 Bit A/D - \$2495
 - c. 8 Bit A/D - \$1900
 - d. Additional 8K Memory - \$795
 - e. GPIB - \$600
8. Delivery: 90 days

Customer Reconfigurable
Don
 The Data Precision appears to be a very nice instrument. It does seem to be best suited for ATE applications. Note: it only has 3 input ranges $\pm 500mV$, $\pm 5V$, $\pm 50V$. It does not have full mode or B slope trigger. It is not easy to use as a bench scope.
Logan

MAR 31 1982

LAB SCOPE MARKETING
39-307

Copies to:
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RSM
ID Mktg Admin 51-304

5000 Series Marketing
Field Report Dist.
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