

Specification Sheet

# VIavi

## IFF-45TS

MK XIIA/TACAN 벤치 테스트 세트

### 사용자 인터페이스

Interfaces Supported	IEEE-488, RS232 and Ethernet (VXI-11)
	PC Windows based GUI provided

### 작동 모드

Transponder Testing: 1, 2, 3/A, C, S, 4, 5
Interrogator Testing: 1, 2, 3/A, C, S, 4, 5
DME/TACAN Testing: G/A, INV G/A, BG/A, BA/A, A/A, INV A/A
ADS-B Transponder Out
GCIB Decode

### 신호발생기

<b>주파수 범위</b>
955 to 1223 MHz, 10 KHz resolution



### 출력 진폭 직접 포트

0.0 dBm to -110.0 dBm (into 50 Ω) in 0.1 dB increments	
Accuracy@ 25° ± 5° C	
0.0 dBm to -80.0 dbm	±0.5 dB
< -80.0 dBm to -100 dBm	± [0.5 dB + 0.05 dB per dB below -80 dBm] <sup>1</sup>
< -100.0 dBm	± [1.5 dB + 0.35 dB per dB below -100 dBm] <sup>2</sup>

Accuracy over full temp	
0.0 dBm to -80.0 dbm	±1.0 dB
< -80.0 dBm to -100 dBm	± [1.0 dB + 0.10 dB per dB below -80 dBm] <sup>2</sup>
< -100.0 dBm	±[3.0 dB + 0.70 dB per dB below -100 dBm] <sup>2</sup>

### 안테나 포트

+30.0 dBm to -60.0 dBm (into 50 Ω) in 0.1 dB increments	
Accuracy @ 25° ± 5° C	
Power ≥ -30.0 dBm	±1.0 dB
Power < -30.0 dBm	±[1.0 dB + 0.033 dB per dB below -30 dBm] <sup>2</sup>
Accuracy over full temp	
Power ≥ -30.0 dBm	±2.0 dB
Power < -30.0 dBm	±[2.0 dB + 0.066 dB per dB below -30 dBm] <sup>2</sup>

### 펄스 포맷

Transponder/Interrogator	1, 2, 3/A, C, S
Secure Modes	4, 5
Modes 3/A, C, S comply with RTCA/DO-181C; Modes 1, 2, 4, 5 comply with DOD AIMS 03-1000A.	
DME/TACAN	/A, A/A, INVERSE G/A, INVERSE A/A, BEACON G/A, BEACON A/A

1 - 따라서 -85dBm의 전력 설정에 대해 정확도는 + [0.5 + 0.05\*5]가 됩니다. 또는 ±0.75dB이고 -95dBm의 전력 설정에 대해 정확도는 ± [0.5 + 0.05\*15] 또는 ±1.25dB입니다.

2 - 위의 예와 같이

## 신호 발생기(계속)

펄스 위치 편차	
XPDR	±1 μs
INT Non-Mode 5	±1 μs
INT Mode5	±0.25 μs
Accuracy [XPDR/INT]	±10 ns
TACAN <sup>3</sup>	12 ± 0.1 μs
Accuracy [TACAN]	±100 ns

펄스 폭 편차	
Transponder <sup>4</sup>	Nominal ±0.6 μs (fixed in Mode S-SPR)
Accuracy	±10 ns
Interrogator <sup>4</sup>	Nominal ±0.5 μs
Accuracy	±10 ns
TACAN	3.5 μs to 9.0 μs
Accuracy	±0.1 μs
Pulse Amplitude	
XPDR/INT	+5 to -15 dB
TACAN	±5 to -15 dB

간섭 펄스 특성(1 또는 2 펄스)	
Position	-1 μs to +400 relative to reference
Offset range	
XPDR	-44 μs to 400 μs
INT	-1 μs to 400 μs
Accuracy	±10 ns

간섭 펄스 간격(다중 펄스 간섭 모드)	
Range	-1 μs to +400 relative to 1st pulse
Max 2nd pulse position	400 μs - 1st pulse position
Accuracy	±10 ns

범위 지연	
DME/TACAN	1 to 400.00 nmi in 0.01 nm steps
Accuracy	0.02 nm or 0.0003% of simulated range
INT	0 to 400.00 nmi
Accuracy	±0.01 nmi

다양성	
Timing (either channel)	0 to ±1 μs, ±10 ns accuracy

에코	
DME/TACAN	
Amplitude Variation	
Accuracy	

채널 신호 할당	
Transponder Test	Top/Bottom
Interrogator Test	Sum/Difference
TACAN	Top/Bottom

3 - 펄스 겹침이 허용되지 않음  
4 - 최소 펄스 폭은 200ns입니다.

Interrogation 생성기	
Independent/Unique Interrogations 1-12	
Fixed Mode	SIF Mode: 1-10000 PRF
	Mode 5: 1-1200 PRF
	Mode S: 1-2500 PRF
	Mode 4: 1-3500 PRF (internal) 1-2500 PRF (external)
Double/Supermode	
Spacing between interrogations (slaved delay)	0-400 μs
Pair generation rate	1-400 PRF
Supermode interrogations	2 interrogations
Burst Mode	
Bursts/trigger	1-1000 or infinite
Interrogations/burst	1-2500
Interrogation rate (within a burst)	1-400 PRF
Spacing between burst sequences	0.1-20 sec
Interlaced Mode	
Interlace ratio	1:1 - 1:63
Group rate	1-400 PRF

응답 생성기	
Independent/Unique Replies	1-12
Data and Range	Individually configured
Selectable Modes	1,2,3/A,C,S,4,5
Selectable Efficiency	1-100%

스펙트럼 순도 잔류 수준	
Harmonics	Direct: <50 dBc
	Antenna: <40 dBc
Spurious (> modulation BW)	<60dBc, 350 - 1800 MHz
Phase Noise	<80 dBc/Hz @ 100 kHz

## 신호 수신기 측정

주파수 범위	
1020 to 1155	

입력 진폭	
Pulse Power Measurements	
25 ±5 ° C	Direct +30 dBm to +66 dBm: +0.5 dB
	Antenna -40 to +30 dBm: +1 dB
	Resolution: 0.01 dB
-10 ° to 55 ° C	Direct +30 dBm to +66 dBm: +1 dB
	Antenna -40 to +30 dBm: +2 dB
	Resolution: 0.01 dB

## 신호 수신기 측정 (계속)

펄스 대 펄스 간격	
XPDR/INT	
Non-Mode 5	±0.3 µs
Mode 5	±0.0625 µs
Accuracy	±10 ns
TACAN	
Accuracy	±50 ns
펄스 폭	
XPDR/INT	
Accuracy	±0.200 µs
Accuracy	±10 ns
TACAN	
Accuracy	2.5 to 4.5 µs
Accuracy	±50 ns
응답 지연	
Accuracy	±20 ns
응답 지연 지터	
Accuracy	±20 ns
주파수	
Accuracy	±50 KHz
% 응답	
Range	0-100% for each interrogation type
Resolution	0.0125% (for sample size = 8000)
Sample Size	1 - 8000 interrogations
특정 애플리케이션	
TACAN/DME	
Ident	
Variable	10 sec to 60 sec
Alphanumeric Character	1 to 8 [A to Z]
Bearing	
Range	0° to 359.9° in 0.1° steps
Accuracy	±0.05°
Rate	0° to 39° sec in 0.01° steps
Velocity	
Range	0 to 9999 Kts in 1 Kt steps
Accuracy	±0.001%
Squitter	
Range	10 to 8000 Hz
Accuracy	10 Hz or 2%, whichever is greater
Distribution	Compliant with ARINC 568 @ 2700 Hz
Main Reference Burst	
Adjustable Burst (all modes)	+1, +2, -1 or -2
Selectable	On/Off
X Channel	12 pulse pairs
Y Channel	13 single pulses
A/A (all channels)	10 single pulses
Accuracy	±100 ns

Auxiliary Reference Burst	
Adjustable Burst (all modes)	+1, +2, -1, or -2
X Channel	6 pulse pairs
Y Channel	13 single pulses
Accuracy	±100 ns
TACAN Modulation	
Range	0% to 39% in 1 Hz steps (15 Hz and 135 Hz separately adjustable)
Accuracy	±1%
Distortion	<5% of either tone
A/A Interrogation Rate	0 to 3999 Hz in 1 Hz steps
Reply Efficiency	0 to 100% in 1% steps
Crypto Appliqué Compatibility	
KIV-77 - AIMS Type B, Mode 4/5	
KIV-78 - AIMS Type A, Mode 4/5	
KIV-6 - Mode 4	
KIT-1(A/C) / KIR-1(A/C) cables (external power cable)	
Built-in Crypto Appliqué Function	
Mode 4 Internal Crypto Simulator (standard)	
Word A/B, C1 - C16	
Mode 5 Internal Crypto Simulator (standard with options 1 and 3)	
As defined by the U.S. Navy Mode 5 Program Office	

## 인터페이스 신호

아날로그 신호 포트(프로그래밍 가능한 출력)	
2 Ports	
Programmable Sources	Various
Level	±1 V into 50 Ω
트리거 아웃(전면 패널)	
Programmable Source	TX timing ref, RX detection
Level	3.3 V logic
트리거 인(전면 패널)	
Functions	Interrogation Trigger Reply Trigger
Level	3.3 or 5 V logic
Suppression 아웃	
Amplitude into 2 KΩ	12 V to 80 V
Variable Pulse Width	0.25 µs - 300 µs
Suppression 인	
Amplitude	10 V to 80 V
Impedance	2.2 KΩ
Action	Inhibits response to incoming signal

## 일반

Frequency/Time Reference	2.5 ppm composed of 1 ppm/year aging and 1 ppm accuracy over temp
External Reference Input	2.5 ppm composed of 1 ppm/year aging and 1 ppm accuracy over temp
VSWR	Direct = 1.2:1 over frequency range
	Antenna = 2.5:1 over frequency range
Input Power	100-240 VAC, 50-60 Hz, 3 Amp fuse

## 환경

Temperature Range	-10° to 55° C (14° to 131° F)
Warm-up (for specified accuracy)	45 minutes

## 물리적 특성

Dimensions (w/o controller)	17.75" W x 4" H x 21" D (45 cm x 10 cm x 53 cm)
Weight	24 lbs (10 kg)

## 테스트 세트 인증

UL
CE
DoD AIMS MK XIIA Level 1 and Level 2

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