


## DAFTAR PUSTAKA

- [1] Gultom, Amry Daulat. "Kajian implementasi radio siaran digital di Indonesia [Study of digital radio broadcasting implementation in Indonesia]." *Buletin Pos Dan Telekomunikasi* 13.2 (2015): 133-150.
- [2] Rahayu, Yusnita. 2017 PERANCANGAN ANTENA DENGAN CIRCULAR LINE PATCH DAN THICK LINE UNTUK LTE FREKUENSI 1.8 GHZ
- [3] Simanjuntak, Imelda. 2019 RANCANG BANGUN ANTENA MIKROSTRIP RECTANGULAR ARRAY DENGAN U – SLOT PADA FREKUENSI 1,8 GHZ
- [4] Reza, Muhaammad Aditya, Munadi Rizal, Walidainy Hubbul. Desain dan Pengujian Antena Microstrip Rectangular Patch Array Dua Elemen Untuk Wimax 2,3 GHZ
- [5] Rezky Astika P, A., Abdullah, B., & Armynah, B. ANTENA MIKROSTRIP SLOT BIQUAD SINGLE ARRAY DENGAN PANDU GELOMBANG COPLANAR UNTUK KOMUNIKASI WIRELESS PADA FREKUENSI 2, 4 GHZ.
- [6] Mahardika, D. RANCANG BANGUN PENGUAT PEMANCAR TELEVISI KANAL UHF 21 MENGGUNAKAN MOSFET.
- [7] Ikhawan, I., Hayati, R., Misriana, M., & Nasri, N. (2020). Analisis Penambahan Reflektor Sudut pada Antena V-Double Dipole pada Frekuensi Kerja 1.800 MHz. *Jurnal Litek: Jurnal Listrik Telekomunikasi Elektronika*, 17(2), 37-41.
- [8] Tangkudung, R. R. (2013). *RANCANG BANGUN SISTEM TRANSMISI DAYA NIRKABEL PADA PIRANTI BERGERAK 2, 5 GHZ* (Doctoral dissertation, Universitas Hasanuddin).
- [9] RUSLI, R. (2013). *DESAIN ANTENA MIKROSTRIP UNTUK APLIKASI GROUND PENETRATING RADAR (GPR)* (Doctoral dissertation, Universitas Hasanuddin).
- [10] Putri, S. M. (2018). ANALISIS ANTENA MIKROSTRIP FRAKTAL SIERPINSKI GASKET MIMO. *Jurnal Elektro dan Telkomunikasi*, 4(2), 55-61.

- [11] Prabowo, B. H., Wijanto, H., & Wahyu, Y. (2016). Perancangan Dan Realisasi Antena Susunan Linier Mikrostrip Patch Persegi Dengan Catuan Proximity Coupled Untuk Radio Altimeter Pesawat 4, 2 & 4 Ghz. *eProceedings of Engineering*, 3(2).
- [12] Handika, D. M. (2022). Rancang Bangun Antena Mikrostrip Patch Circular Untuk Aplikasi 5G. *Data Sciences Indonesia (DSI)*, 2(1), 9-12.
- [13] Alaydrus, Mudrik. 2011. Antena Prinsip Dan Aplikasi. Yogyakarta: Graha Ilmu
- [14] Menteri Komunikasi Dan Informatika Republik Indonesia, "Peraturan Menteri Komunikasi Dan Informatika Republik Indonesia Nomor 1 Tahun 2019 Tentang Penggunaan Spektrum Frekuensi Radio Berdasarkan Izin Kelas," 2019.
- [15] Panggabean, Chandro S, Hidayat Reza, 2021. PENGGUNAAN MATERIAL DIELEKTRIK BUATAN BERBASIS RECTANGULAR PATCH PADA ANTENA HORN UNTUK RADAR XBAND
- [16] Tim Peneliti Puslitbang SDPPI, *Studi Lanjutan 5G Indonesia 2018 Spektrum Outlook dan Use Case untuk Layanan 5G Indonesia*. Jakarta: Puslitbang Sumber Daya, Perangkat, dan Penyelenggaraan Pos dan Informatika Badan Penelitian dan Sumber Daya Manusia Kementrian Komunikasi dan Informatika, 2018
- [17] Sethi, Minu. Nijhawan, Geeta 2016A Two Slotted Circular Microwave Antenna Design for Hyperthermia System Applicators.
- [18] Khanna, Puneet. Shinghal, Kshitij. Kumar, Arun (2016) Multi-band Annular Ring
- [19] Tim Peneliti Puslitbang SDPPI, *Studi Lanjutan 5G Indonesia 2018 Spektrum Outlook dan Use Case untuk Layanan 5G Indonesia*. Jakarta: Puslitbang Sumber Daya, Perangkat, dan Penyelenggaraan Pos dan Informatika Badan Penelitian dan Sumber Daya Manusia Kementrian Komunikasi dan Informatika, 2018

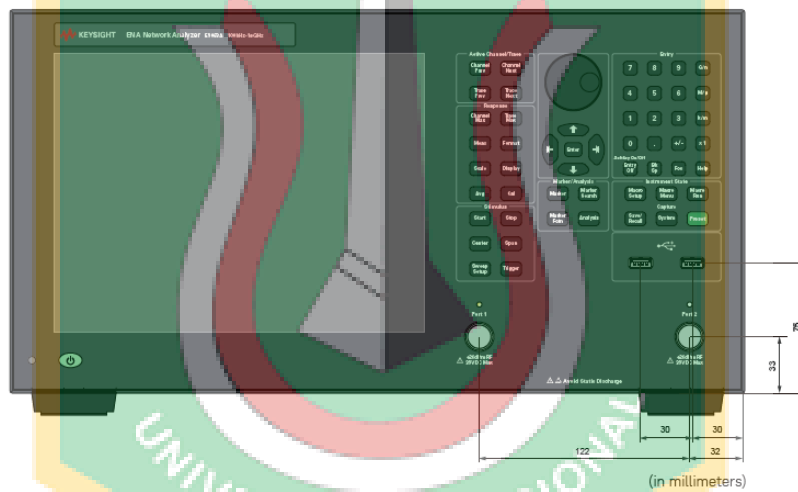
## LAMPIRAN

- **Antena Horn**

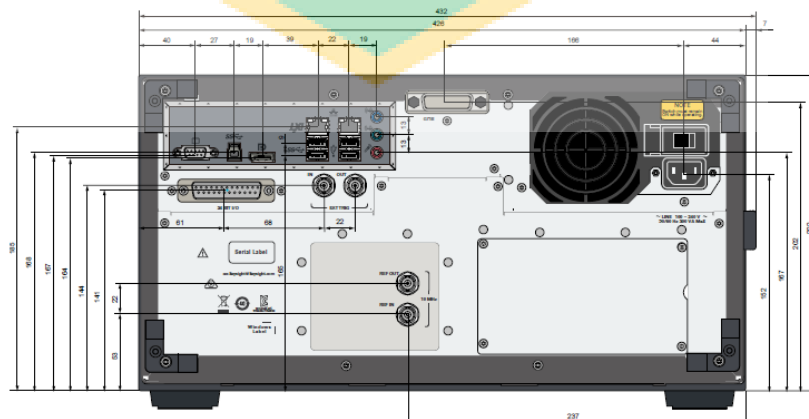
	Nomor Model	XEXA182
	Tipe	RFID/NFC Antena
	Tempat Asal	China
		Sichuan
	Nama merek	Xexa
	Nama produk	1-18g Hz dual ridge broadband tanduk antena
	Rentang frekuensi-GHz	0.8-20
	Mendapatkan dBi	12 Typ
	VSWR	1.5 Typ
	Konektor	SMA-Perempuan
	Polarisasi	Linear
	Bahan	Aluminium

- **Network Analyzer Keysight E5063A**

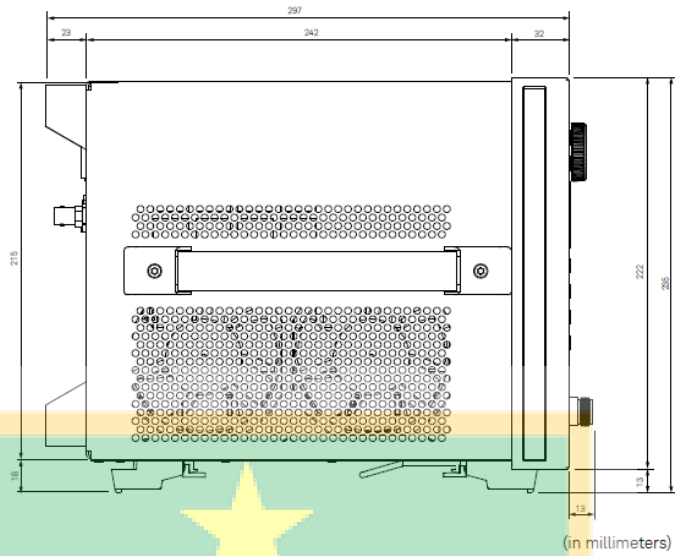
Dimensions (front view)



Dimensions (rear view)



Dimensions (side view)



Description	Specification (dB)							
	100 kHz to 300 kHz	300 kHz to 1 MHz	1 to 100 MHz	100 MHz to 3 GHz	3 to 6 GHz	6 to 10 GHz	10 to 13 GHz	13 to 18 GHz
Directivity	10 dB	10 dB	25 dB	25 dB	20 dB	15dB	10 dB	10 dB
Source match	20 dB	20 dB	25 dB	25 dB	20 dB	15dB	15 dB	15 dB
Load match	7 dB (typ.)	11 dB (typ.)	14 dB	11 dB	10 dB	7dB	8 dB (typ.)	6 dB (typ.)
Reflection tracking	± 3.0 dB	± 3.0 dB	± 1.0 dB	± 1.0 dB	± 1.0 dB	± 1.0 dB	± 1.0 dB	± 1.0 dB
Transmission tracking	± 3.0 dB	± 3.0 dB	± 1.0 dB	± 1.0 dB	± 1.0 dB	± 1.0 dB	± 1.0 dB	± 1.0 dB

Test Port Output (Source)

Test port output frequency

Description	Specification	Typical
Frequency range		Frequency can be set from 50 kHz. The performance data from 50 to 100 kHz is typical.
Option 205	100 kHz to 500 MHz	
Option 215	100 kHz to 1.5 GHz	
Option 235	100 kHz to 3 GHz	
Option 245	100 kHz to 4.5 GHz	
Option 265	100 kHz to 6.5 GHz	
Option 285	100 kHz to 8.5 GHz	
Option 2D5	100 kHz to 14 GHz	
Option 2H5	100 kHz to 18 GHz	
Resolution	1 Hz (100 kHz to 6.5 GHz) 2 Hz (6.5 to 13 GHz) 11 Hz (13 to 18 GHz)	
Source stability		± 7 ppm (5 to 40 °C)
CW accuracy	± 7 ppm	

### Test port output power

Description	Specification	Typical
Nominal power (preset power)	-5 dBm	
Range		-20 to -5 dBm
50 kHz to 100 kHz		
100 kHz to 300 kHz	-20 to -5 dBm	
300 kHz to 8.5 GHz	-20 to 0 dBm	
8.5 to 18 GHz	-15 to -5 dBm	
Resolution	0.05 dB	
Level accuracy		
At 50 MHz, -5 dBm, absolute		± 0.9 dB
(level flatness) <sup>1</sup>		
50 kHz to 300 kHz		± 3.7 dB
300 kHz to 1 MHz		± 2.0 dB
1 MHz to 4.34 GHz		± 1.0 dB
4.34 to 8.5 GHz		± 1.6 dB
8.5 to 12 GHz		± 3.6 dB
12 to 18 GHz		± 5.8 dB
Level linearity <sup>2</sup>		
-10 to -5 dBm, 50 kHz to 300 kHz		± 1.6 dB
-10 to 0 dBm, 300 kHz to 8.5 GHz		± 1.6 dB
-10 to -5 dBm, 8.5 to 18 GHz		± 1.8 dB
-20 to -10 dBm, 50 kHz to 8.5 GHz		± 2.7 dB
-15 to -10 dBm, 8.5 to 18 GHz		± 2.9 dB

### Test Port Input

Description	Specification	Typical
Test port input level		
Maximum input level	+6 dBm	
Crosstalk		-88 dB
50 kHz to 100 kHz		
100 kHz to 300 kHz	-88 dB	
300 kHz to 8.5 MHz	-93 dB	
8.5 MHz to 4.34 GHz	-115 dB	
4.34 to 6 GHz	-105 dB	
6 to 13 GHz	-100 dB	
13 to 16 GHz	-90 dB	
16 to 18 GHz	-85 dB	
Test Port Noise Floor (IFBW=1 Hz)		-103 dBm
50 kHz to 100 kHz		
100 kHz to 8.5 MHz	-103 dBm	
8.5 to 100 MHz	-126 dBm	
100 MHz to 4.34 GHz	-127 dBm	
4.34 to 8.5 GHz	-116 dBm	
8.5 to 13 GHz	-115 dBm	
13 to 16 GHz	-105 dBm	
16 to 18 GHz	-102 dBm	
Compression level (at maximum test port input level = +6 dBm)		
Magnitude		
50 kHz to 1 MHz		± 0.2 dB
1 MHz to 4.34 GHz		± 0.2 dB
4.34 to 13 GHz		± 0.2 dB
13 to 18 GHz		± 0.2 dB
Phase		
50 kHz to 1 MHz		± 5 deg.
1 MHz to 4.34 GHz		± 1.5 deg.
4.34 to 13 GHz		± 6 deg.
13 to 18 GHz		± 10 deg.

