

ASSP for Mobile Communication Systems

Piezoelectric SAW BPF (1000 to 2500 MHz)

F6 Series (L2 Type)

■ DESCRIPTION

The F6 series of bandpass SAW filters are for use in the 1000 to 2500 MHz frequency range.

The SAW filters are fabricated on a lithium tantalate (LiTaO₃) substrate, producing filters with a wide frequency bandwidth, low insertion loss in passband and superior stability. The high frequency filter is enhanced with the high electromechanical coupling coefficient of the material, combined with Fujitsu's filter pattern design techniques.

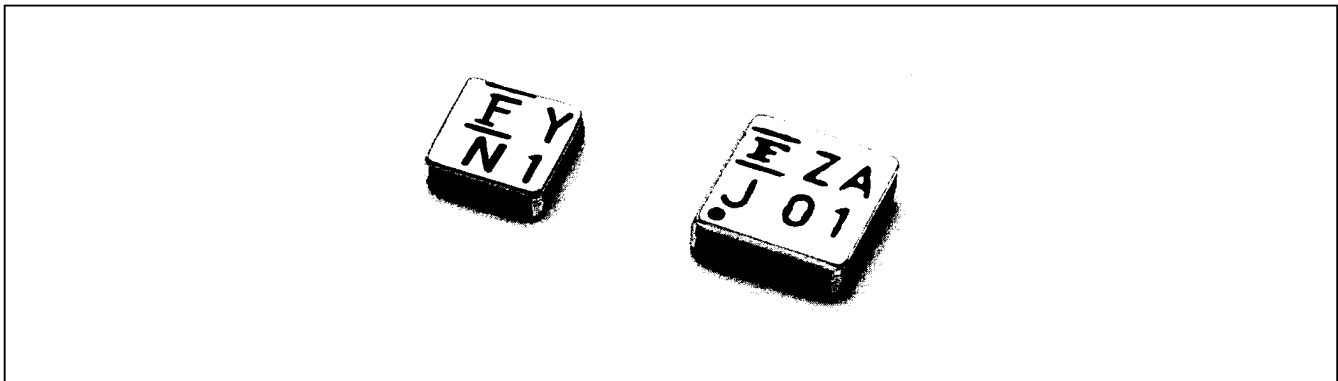
The F6 series SAW filters are housed in a small surface mount package. The impedance in the passband is 50 Ohms hence no external matching circuits are required.

The F6 series SAW filters are suitable for use as interstage RF filters for mobile communication systems in the submicrowave frequency band. Standard devices are available for PDC1.5 G, PCS, DCS1800 and 2.4 GHz Wireless LAN systems.

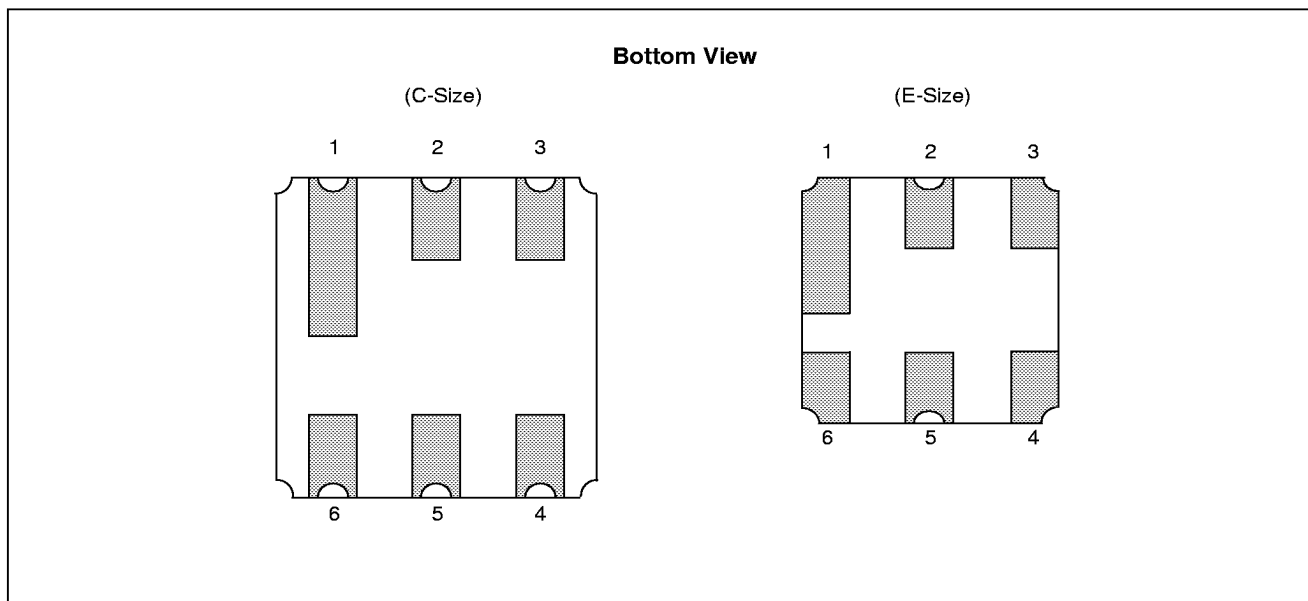
■ FEATURES

- Ultra compact and light package (3.8 mm[□], 3.0 mm[□])
- External matching circuits are not required.
- Surface mount package (SMT)
- Wide variety of standard devices for worldwide mobile communication systems
- Low insertion loss

■ PACKAGE



■ PIN ASSIGNMENT



■ PIN DESCRIPTIONS

Pin No.	Pin name	Description
1	GND	Ground Pin
2	IN	Input Pin
3	GND	Ground Pin
4	GND	Ground Pin
5	OUT	Output Pin
6	GND	Ground Pin

F6 Series (L2)



■ ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Rating	Unit
Operating temperature	T _a	-30 to +85	°C
Storage temperature	T _{stg}	-40 to +100	°C
Frequency range		1000 to 2500	MHz
Maximum input level	P _{IN}	Refer to electrical characteristics	mW

■ RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Value	Unit
Operating temperature	T _a	-30 to +85*	°C

* : Standard Rating for 2.45 GHz Wireless LAN Systems is 0 to +60 °C.

■ STANDARD FREQUENCIES

Center freq. (MHz)	BW (MHz)	System	Part symbol	Part number	Package size
1441.0	24	PDC1.5 G (Tx)	ZA	FAR-F6CC-1G4410-L2ZA	C
1489.0	24	PDC1.5 G (Rx)	ZB	FAR-F6CC-1G4890-L2ZB	C
1619.0	24	PDC1.5 G (Lo)	ZN	FAR-F6CC-1G6190-L2ZN	C
1747.5	75	DCS1800 (Tx)	A	FAR-F6CE-1G7475-L2YA	E
1842.5	75	DCS1800 (Rx)	B	FAR-F6CE-1G8425-L2YB	E
1880.0	60	PCS (Tx)	C	FAR-F6CE-1G8800-L2XA	E
1960.0	60	PCS (Rx)	D	FAR-F6CE-1G9600-L2XB	E
2450.0	100	Wireless LAN	E	FAR-F6CE-2G4500-L2WA	E

■ ELECTRICAL CHARACTERISTICS (STANDARD VERSION)

1. PDC 1.5 G system (Tx)

Part number : FAR-F6CC-1G4410-L2ZA

Ta = -30 to 85 °C

Parameter	Symbol	Condition	Value			Unit	Remarks
			Min.	Typ.	Max.		
Insertion loss	IL	1429 to 1453 MHz	—	2.6	3.5	dB	
In-band deviation		1429 to 1453 MHz	—	1.0	1.8	dB	
Absolute stopband attenuation		DC to 1200 MHz	20	26	—	dB	
		1200 to 1260 MHz	25	30	—	dB	
		1260 to 1287 MHz	30	34	—	dB	
		1287 to 1380 MHz	25	29	—	dB	
		1477 to 1513 MHz	10	14	—	dB	
		1513 to 1607 MHz	33	39	—	dB	
		1607 to 1631 MHz	35	39	—	dB	
		1631 to 1900 MHz	30	38	—	dB	
		1900 to 2906 MHz	18	20	—	dB	
In-band VSWR		1429 to 1453 MHz	—	1.3	2.0	—	
Max. input power	P _{IN}	1429 to 1453 MHz	200			mW	

F6 Series (L2)



2. PDC 1.5 G system (Rx)

Part number : FAR-F6CC-1G4890-L2ZB

Ta = -30 to 85 °C

Parameter	Symbol	Condition	Value			Unit	Remarks
			Min.	Typ.	Max.		
Insertion loss	IL	1477 to 1501 MHz	—	2.9	3.2	dB	
In-band deviation		1477 to 1501 MHz	—	1.2	1.7	dB	
Absolute stopband attenuation		DC to 130 MHz	30	38	—	dB	
		130 to 958 MHz	20	26	—	dB	
		958 to 1216 MHz	25	27	—	dB	
		1216 to 1241 MHz	30	32	—	dB	
		1241 to 1429 MHz	26	28	—	dB	
		1429 to 1453 MHz	10	17	—	dB	
		1542 to 1566 MHz	20	40	—	dB	
		1566 to 1607 MHz	30	40	—	dB	
		1607 to 1631 MHz	35	40	—	dB	
		1631 to 1737 MHz	30	40	—	dB	
		1737 to 1761 MHz	35	40	—	dB	
		1761 to 1900 MHz	30	37	—	dB	
	1900 to 3000 MHz	15	20	—	dB		
In-band VSWR		1477 to 1501 MHz	—	1.4	2.0	—	
Max. input power	P _{IN}	1477 to 1501 MHz	200			mW	

3. PDC 1.5 G system (Lo)

Part number : FAR-F6CC-1G6190-L2ZN

Ta = -30 to 85 °C

Parameter	Symbol	Condition	Value			Unit	Remarks
			Min.	Typ.	Max.		
Insertion loss	IL	1607 to 1631 MHz	—	3.0	4.0	dB	
In-band deviation		1607 to 1631 MHz	—	1.5	2.0	dB	
Absolute stopband attenuation		DC to 130 MHz	30	38	—	dB	
		130 to 1501 MHz	25	28	—	dB	
		1737 to 1809 MHz	30	35	—	dB	
		1809 to 2500 MHz	20	29	—	dB	
		3214 MHz	15	25	—	dB	
In-band VSWR		1607 to 1631 MHz	—	1.6	2.0	—	
Max. input power	P _{IN}	1607 to 1631 MHz	200			mW	

F6 Series (L2)



4. DCS 1800 system (Tx)

Part number : FAR-F6CE-1G7475-L2YA

Ta = -30 to 85 °C

Parameter	Symbol	Condition	Value			Unit	Remarks
			Min.	Typ.	Max.		
Insertion loss	IL	1710 to 1785 MHz	—	3.5	4.5	dB	
In-band deviation		1710 to 1785 MHz	—	2.0	3.0	dB	
Absolute stopband attenuation		DC to 1500 MHz	15	17	—	dB	
		1500 to 1670 MHz	20	22	—	dB	
		1805 to 1880 MHz	5	10	—	dB	
		1880 to 2200 MHz	22	24	—	dB	
		3420 to 3570 MHz	25	27	—	dB	
		5130 to 5355 MHz	10	20	—	dB	
In-band VSWR		1710 to 1785 MHz	—	2.0	3.0	—	
Max. input power	P _{IN}	1710 to 1785 MHz	T.B.D.			mW	

5. DCS 1800 system (Rx)

Part number : FAR-F6CE-1G8425-L2YB

Ta = -30 to 85 °C

Parameter	Symbol	Condition	Value			Unit	Remarks
			Min.	Typ.	Max.		
Insertion loss	IL	1805 to 1880 MHz	—	3.9	4.8	dB	
In-band deviation		1805 to 1880 MHz	—	2.0	2.5	dB	
Absolute stopband attenuation		DC to 1500 MHz	21	23	—	dB	
		1600 to 1710 MHz	26	28	—	dB	
		1710 to 1785 MHz	8	24	—	dB	
		1920 to 2400 MHz	22	24	—	dB	
		3610 to 3760 MHz	22	25	—	dB	
In-band VSWR		1805 to 1880 MHz	—	2.0	3.0	—	
Max. input power	P _{IN}	1805 to 1880 MHz	T.B.D.			mW	

6. PCS system (Tx)

Part number : FAR-F6CE-1G8800-L2XA

Ta = -30 to 85 °C

Parameter	Symbol	Condition	Value			Unit	Remarks
			Min.	Typ.	Max.		
Insertion loss	IL	1850 to 1910 MHz	—	3.5	4.5	dB	
In-band deviation		1850 to 1910 MHz	—	1.5	2.5	dB	
Absolute stopband attenuation		DC to 1500 MHz	22	24	—	dB	
		1500 to 1800 MHz	25	28	—	dB	
		1930 to 1990 MHz	5	8	—	dB	
		3700 to 3820 MHz	20	24	—	dB	
		5550 to 5730 MHz	4	5	—	dB	
In-band VSWR		1850 to 1910 MHz	—	1.8	2.5	—	
Max. input power	P _{IN}	1850 to 1910 MHz	T.B.D.			mW	

7. PCS system (Rx)

Part number : FAR-F6CE-1G9600-L2XB

Ta = -30 to 85 °C

Parameter	Symbol	Condition	Value			Unit	Remarks
			Min.	Typ.	Max.		
Insertion loss	IL	1930 to 1990 MHz	—	4.0	4.8	dB	
In-band deviation		1930 to 1990 MHz	—	2.0	2.8	dB	
Absolute stopband attenuation		DC to 1500 MHz	22	24	—	dB	
		1500 to 1850 MHz	25	28	—	dB	
		1850 to 1910 MHz	10	25	—	dB	
		3920 to 4040 MHz	20	23	—	dB	
In-band VSWR		1930 to 1990 MHz	—	1.8	2.5	—	
Max. input power	P _{IN}	1930 to 1990 MHz	T.B.D.			mW	

F6 Series (L2)



8. Wireless-LAN system

Part number : FAR-F6CE-2G4500-L2WA

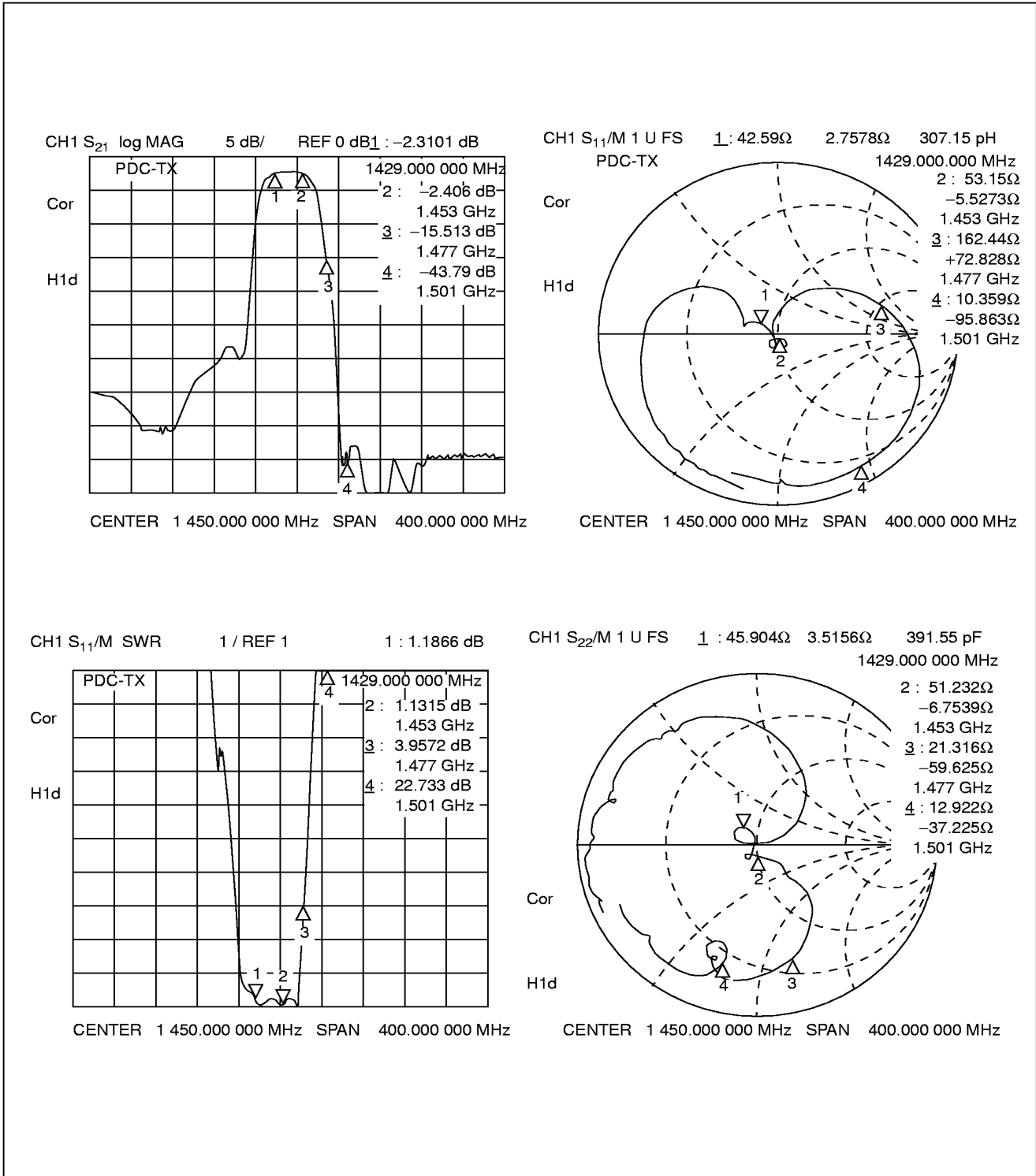
Ta = 0 to 60 °C

Parameter	Symbol	Condition	Value			Unit	Remarks
			Min.	Typ.	Max.		
Insertion loss	IL	2400 to 2500 MHz	—	4.5	5.5	dB	
In-band deviation		2400 to 2500 MHz	—	2.3	3.5	dB	
Absolute stopband attenuation		DC to 1700 MHz	20	25	—	dB	
		1800 to 2200 MHz	25	28	—	dB	
		2700 to 3100 MHz	30	34	—	dB	
		4800 to 5000 MHz	15	18	—	dB	
In-band VSWR		2400 to 2500 MHz	—	2.0	3.0	—	
Max. input power	P _{IN}	2400 to 2500 MHz	1			mW	

■ TYPICAL CHARACTERISTICS (STANDARD VERSION)

1. PDC 1.5 G system (Tx)

Part number : FAR-F6CC-1G4410-L2ZA



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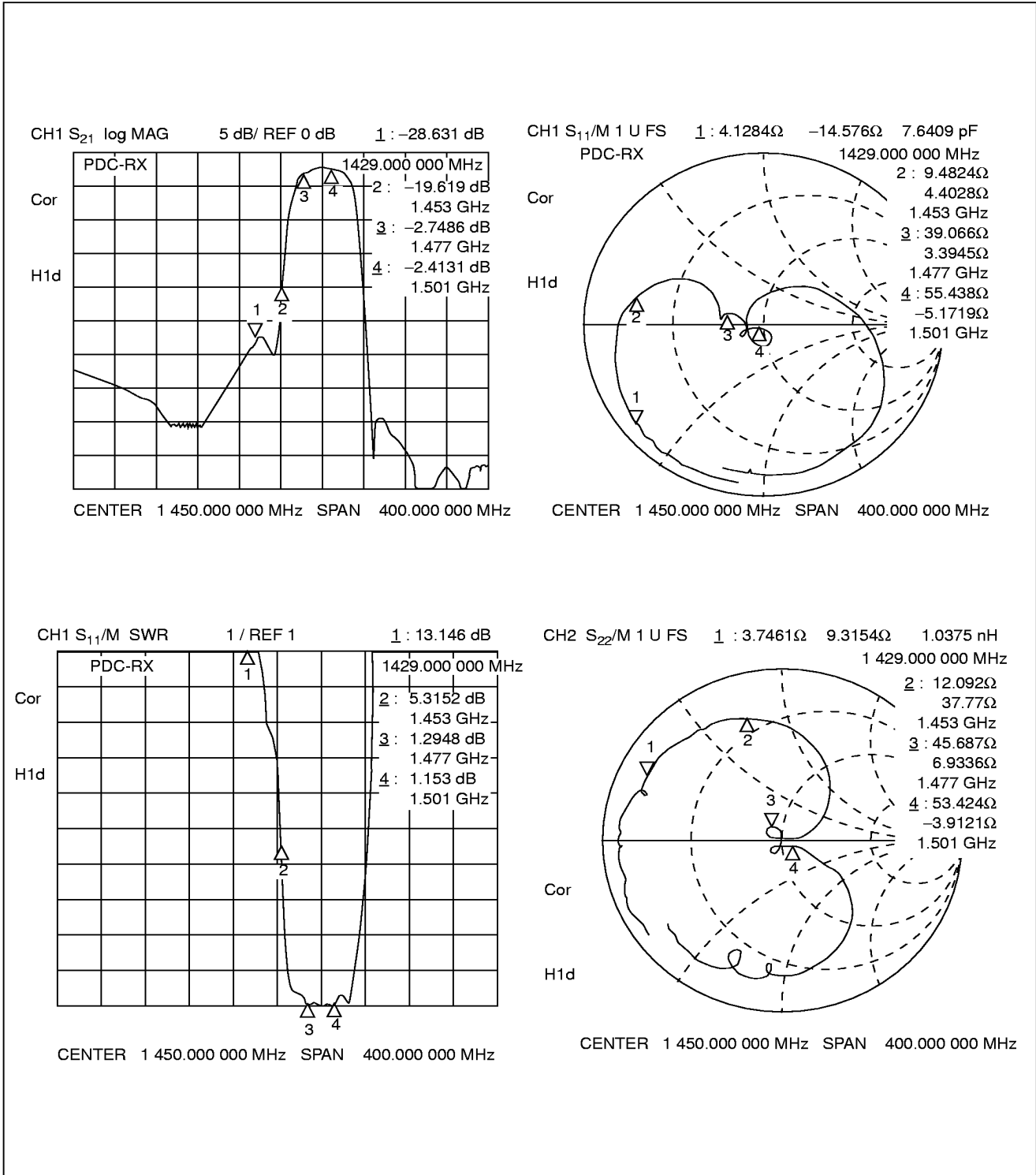
F6 Series (L2)



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2. PDC 1.5 G system (Rx)

Part number : FAR-F6CC-1G4890-L2ZB

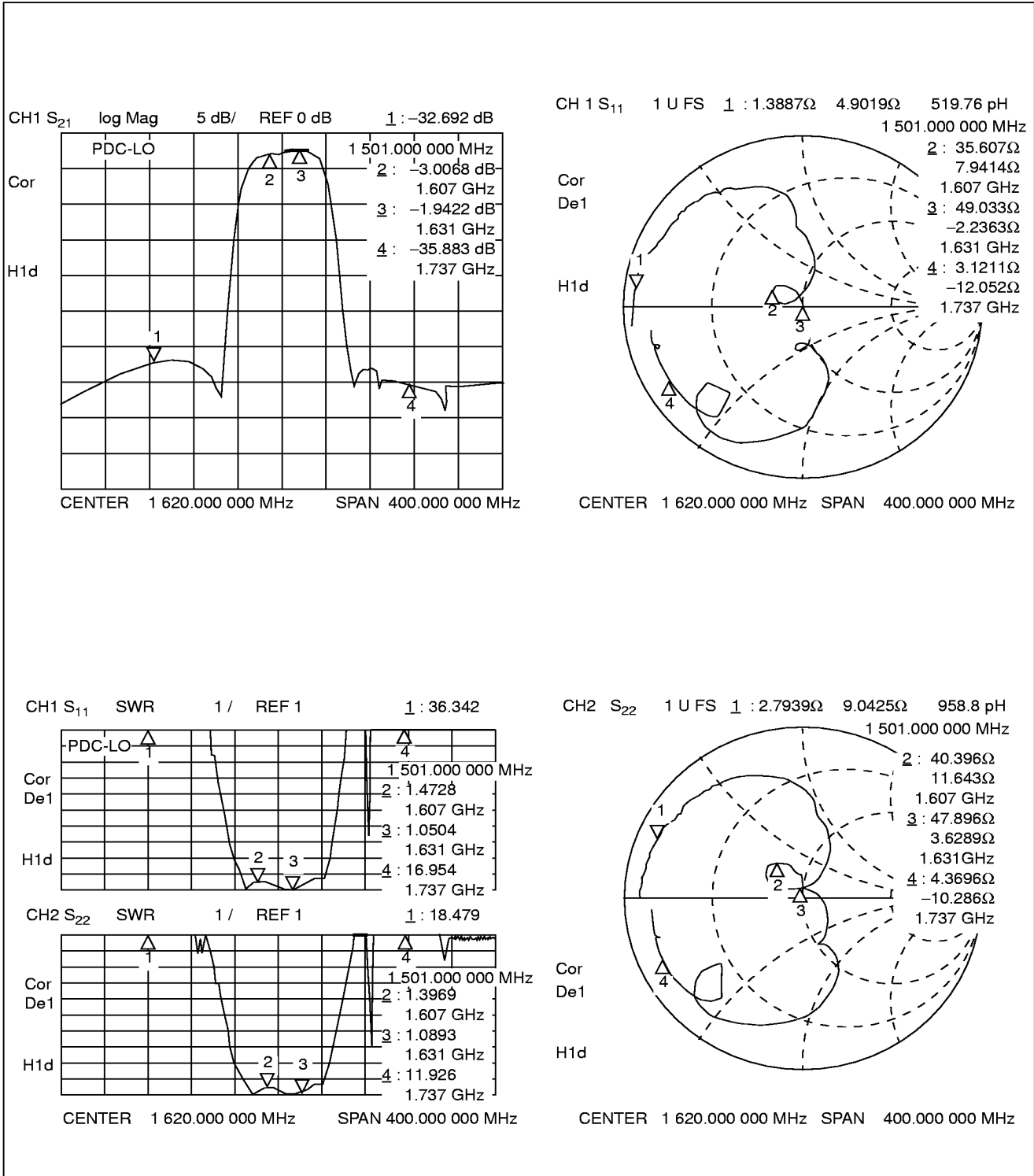


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3. PDC 1.5 G system (Lo)

Part number : FAR-F6CC-1G6190-L2ZN



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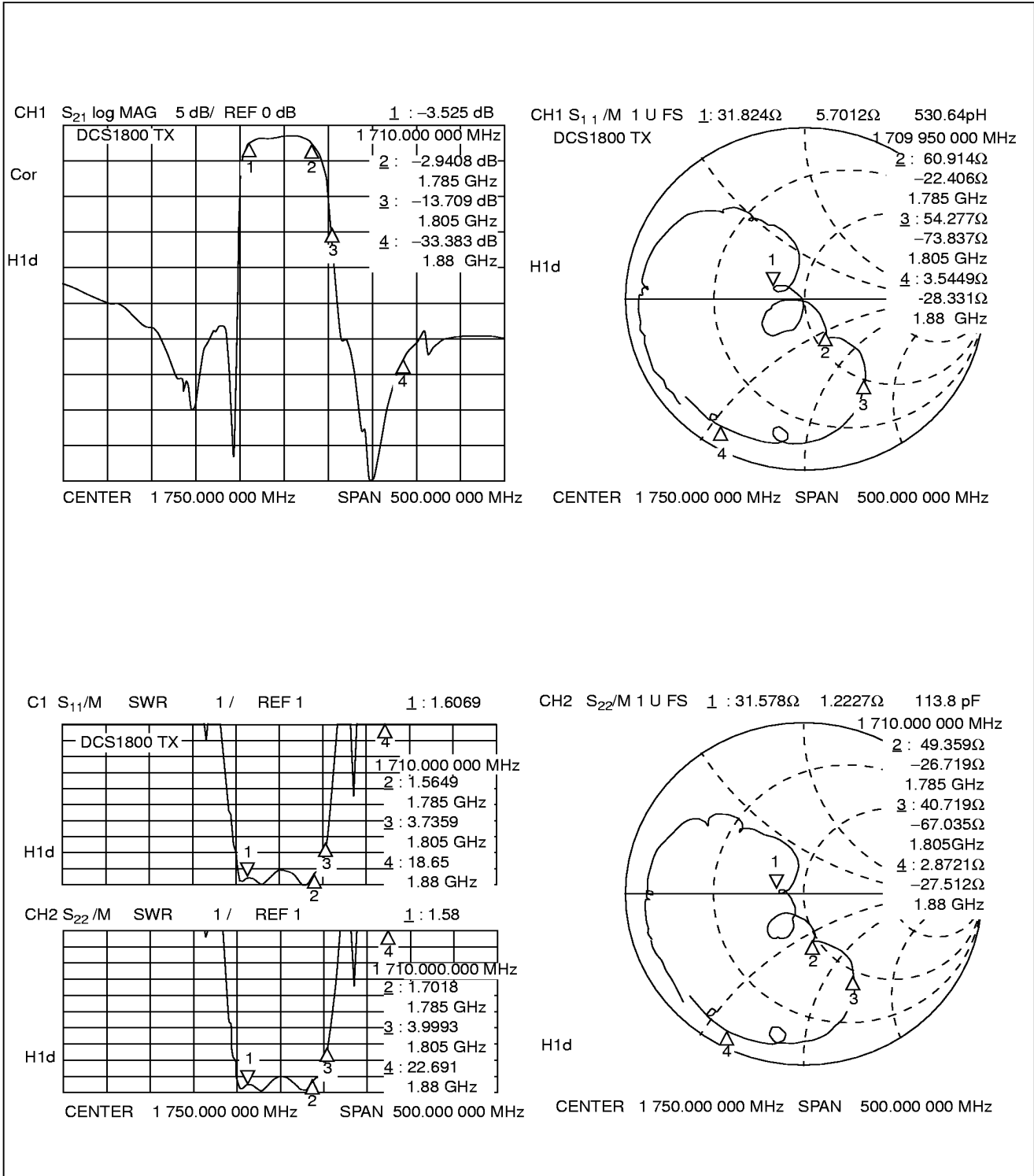
F6 Series (L2)



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4. DCS 1800 system (Tx)

Part number : FAR-F6CE-1G7475-L2YA

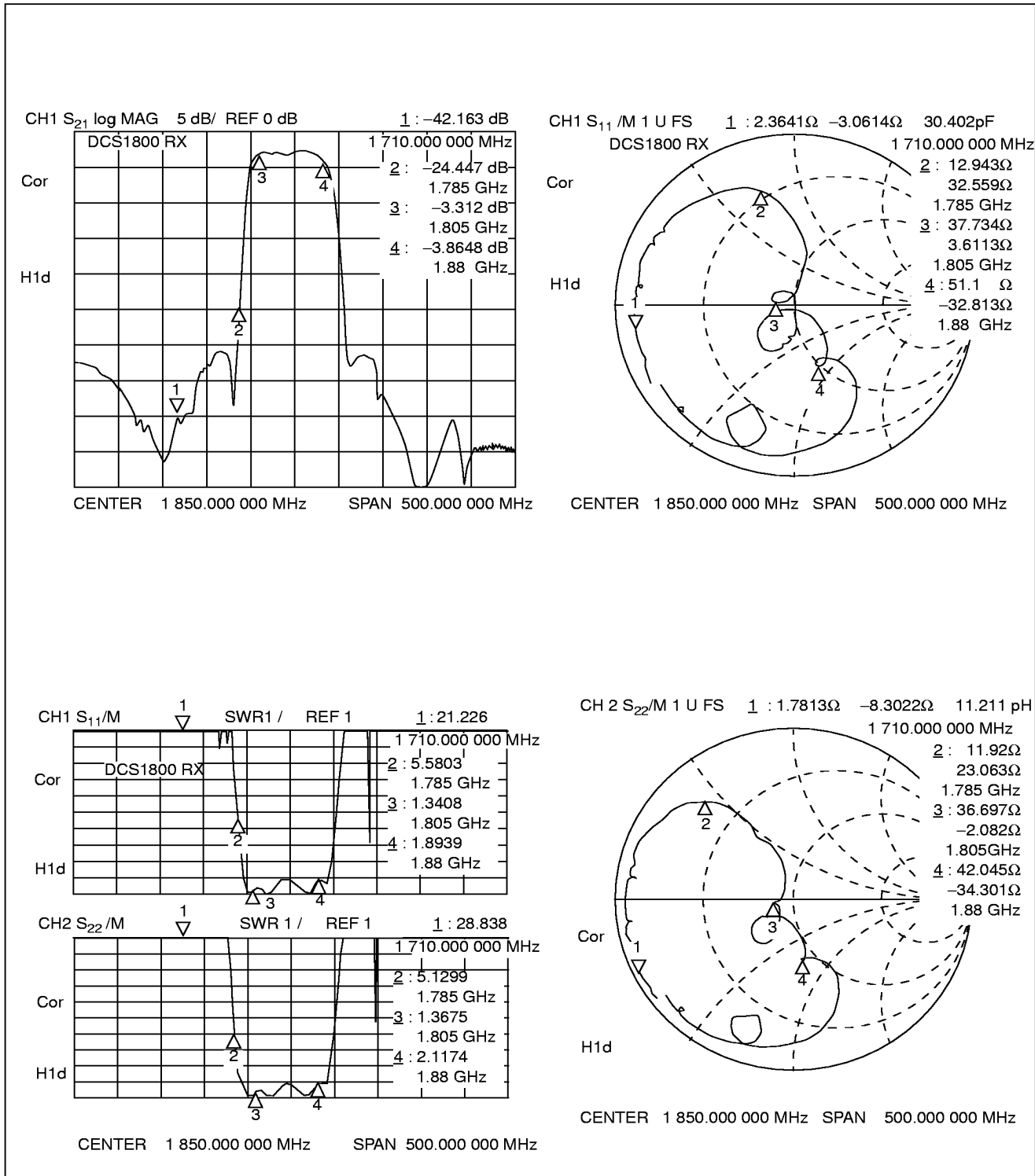


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5. DCS 1800 system (Rx)

Part number : FAR-F6CE-1G8425-L2YB



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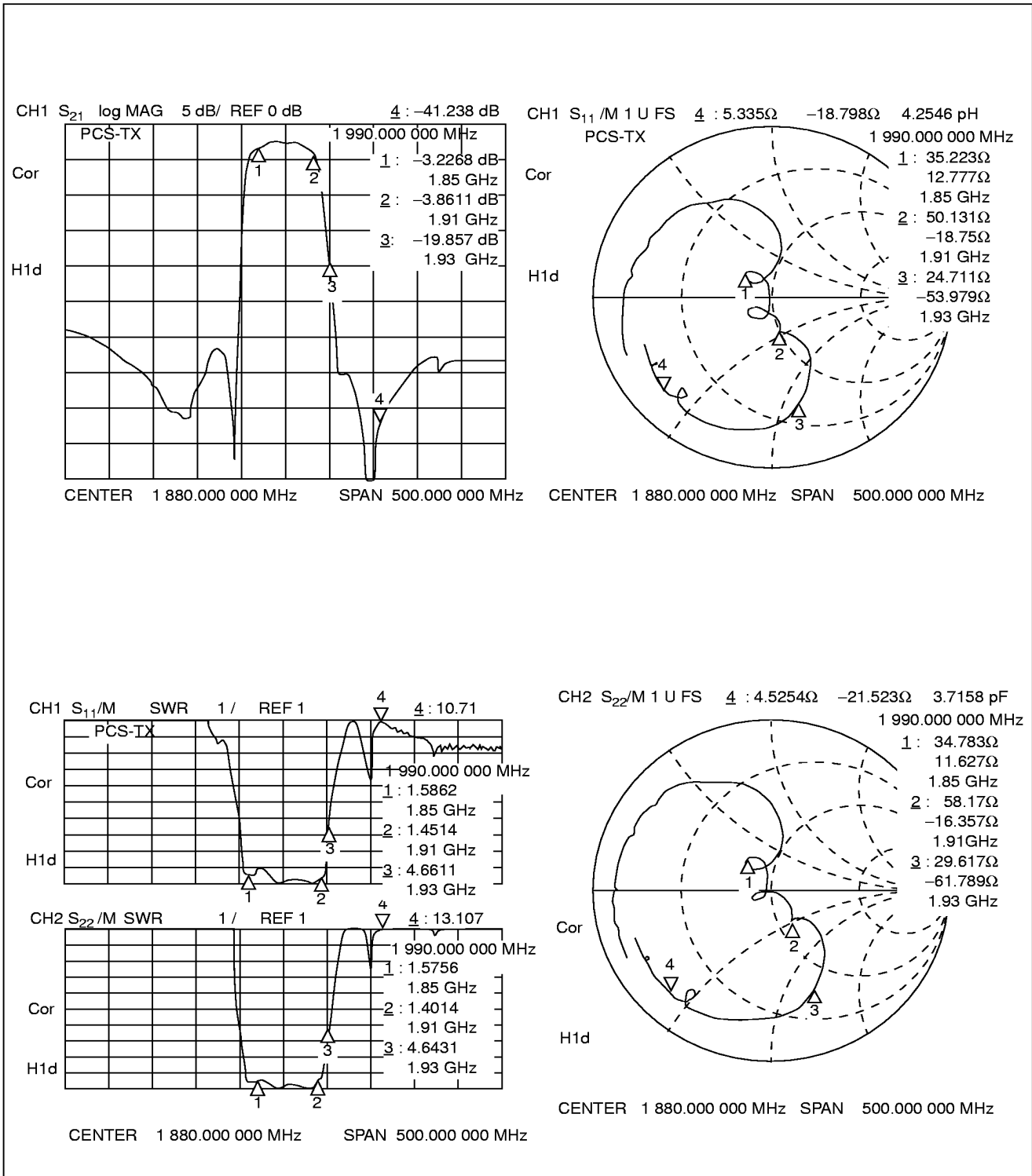
F6 Series (L2)



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6. PCS system (Tx) Preliminary

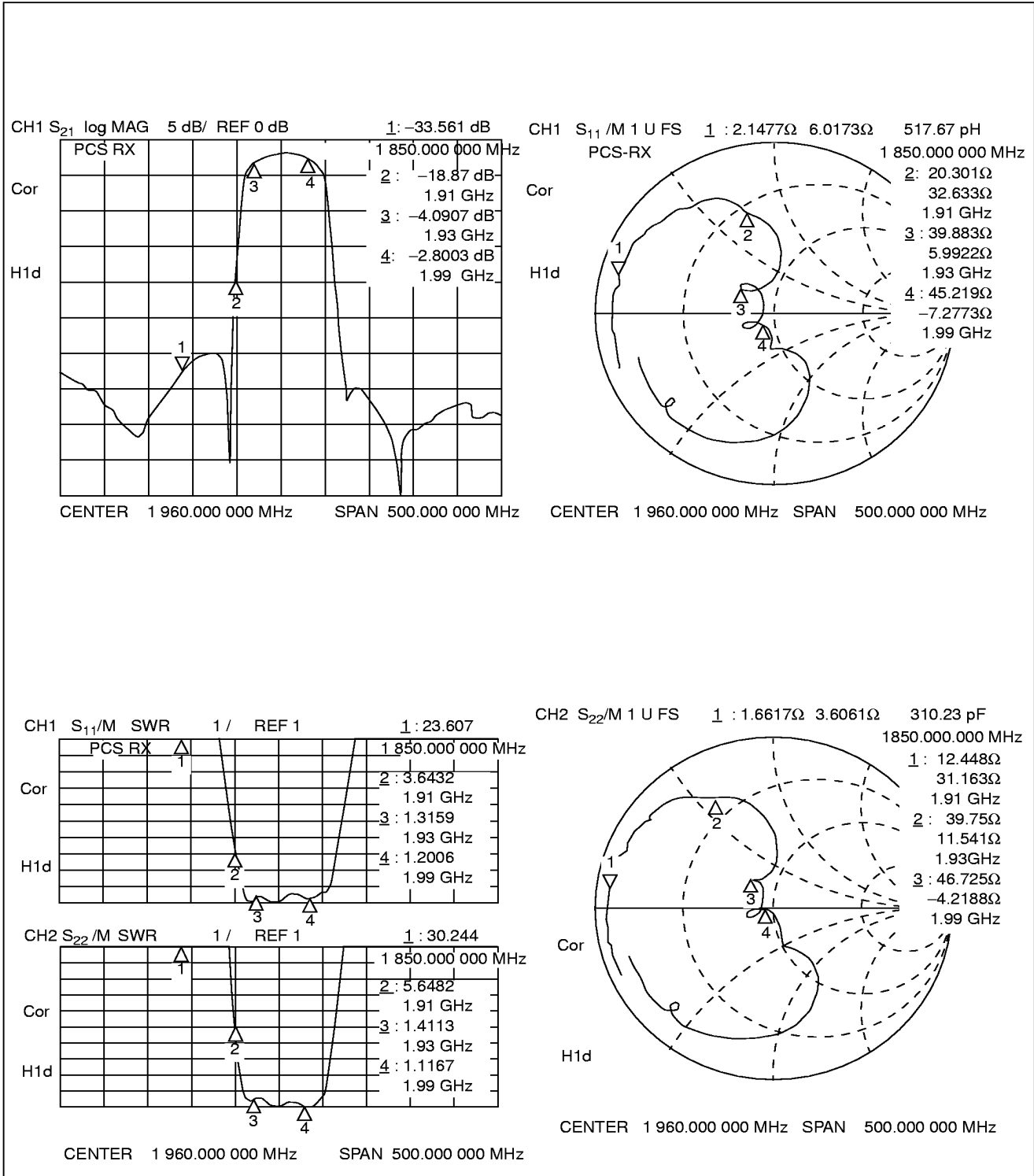
Part number : FAR-F6CE-1G8800-L2XA



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7. PCS system (Rx) Preliminary
 Part number : FAR-F6CE-1G9600-L2XB



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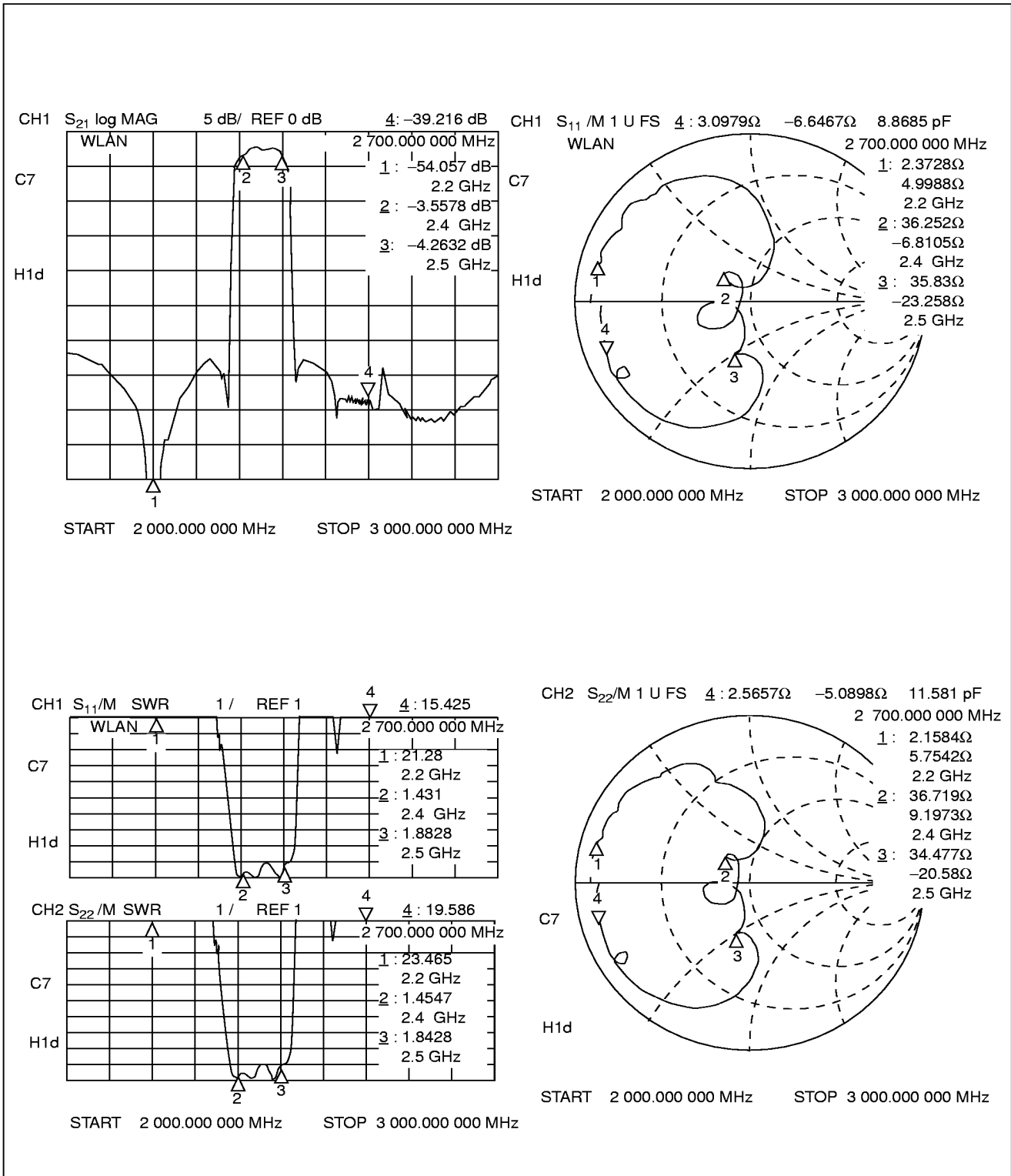
F6 Series (L2)



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8. Wireless-LAN system Preliminary

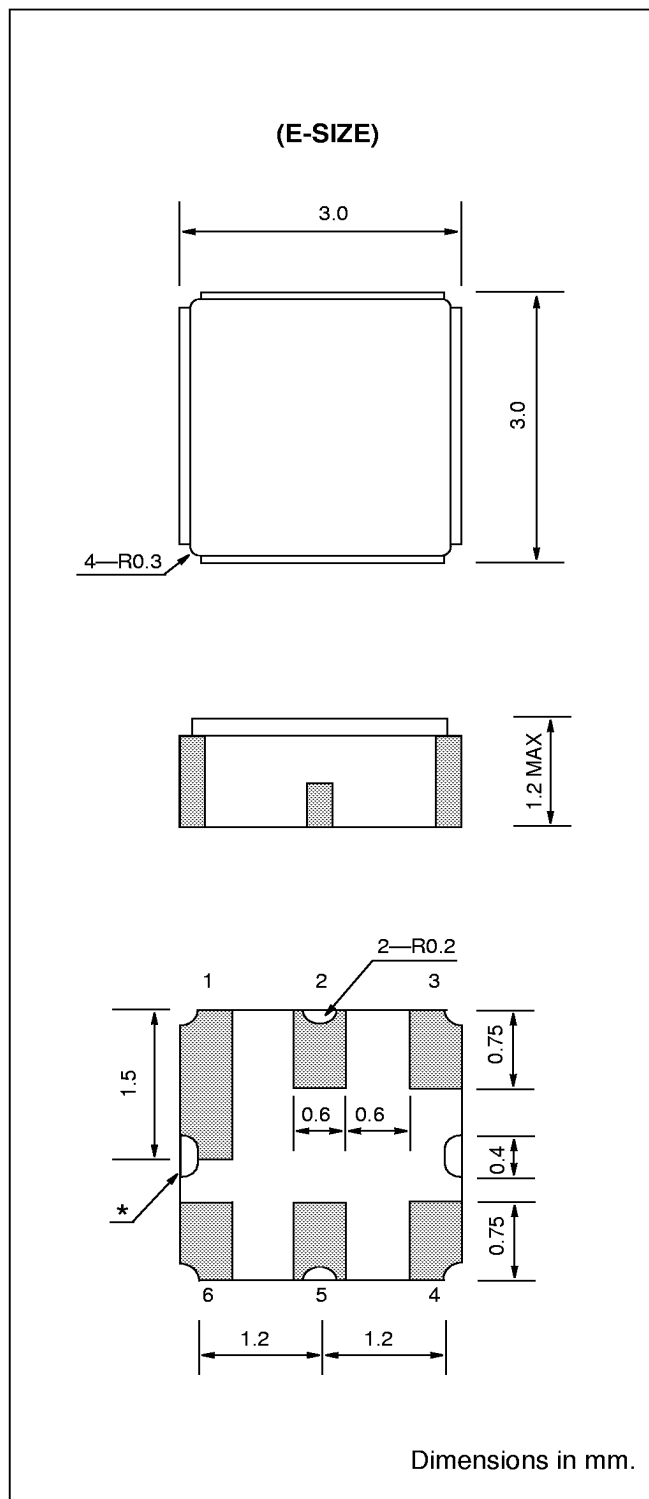
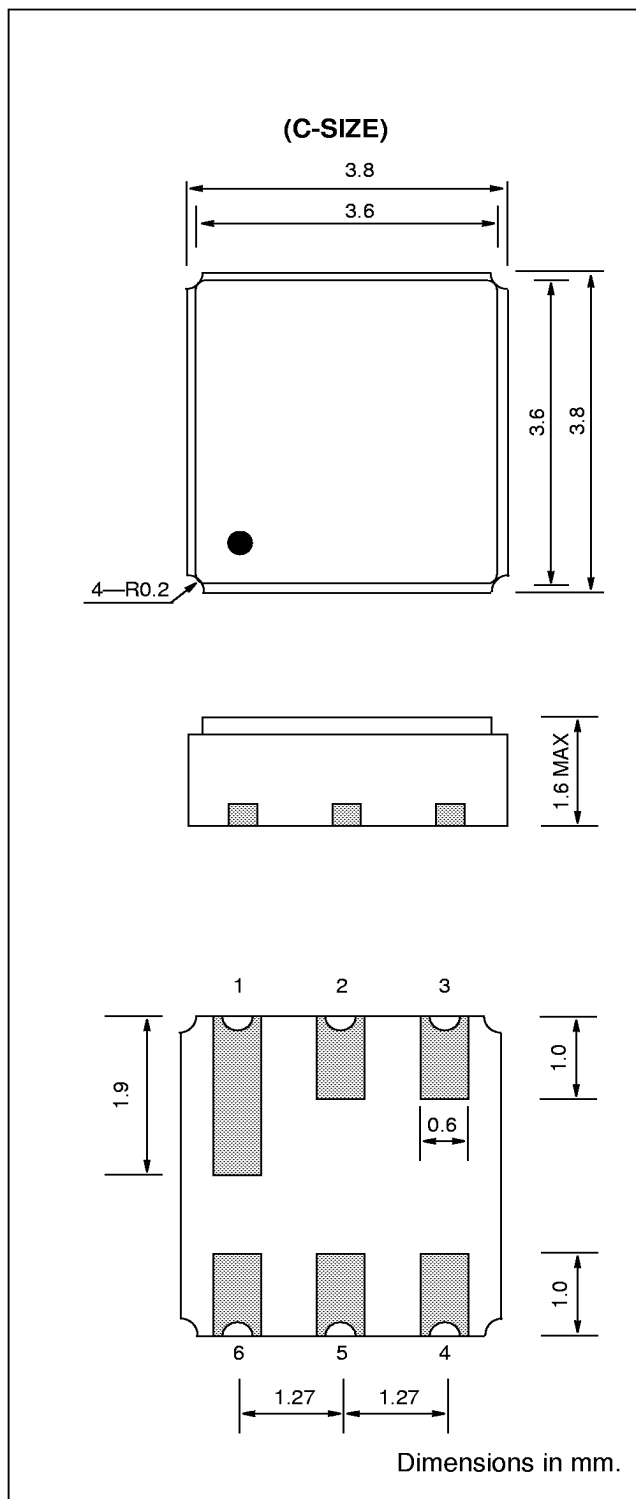
Part number : FAR-F6CE-2G4500-L2WA



F6 Series (L2)

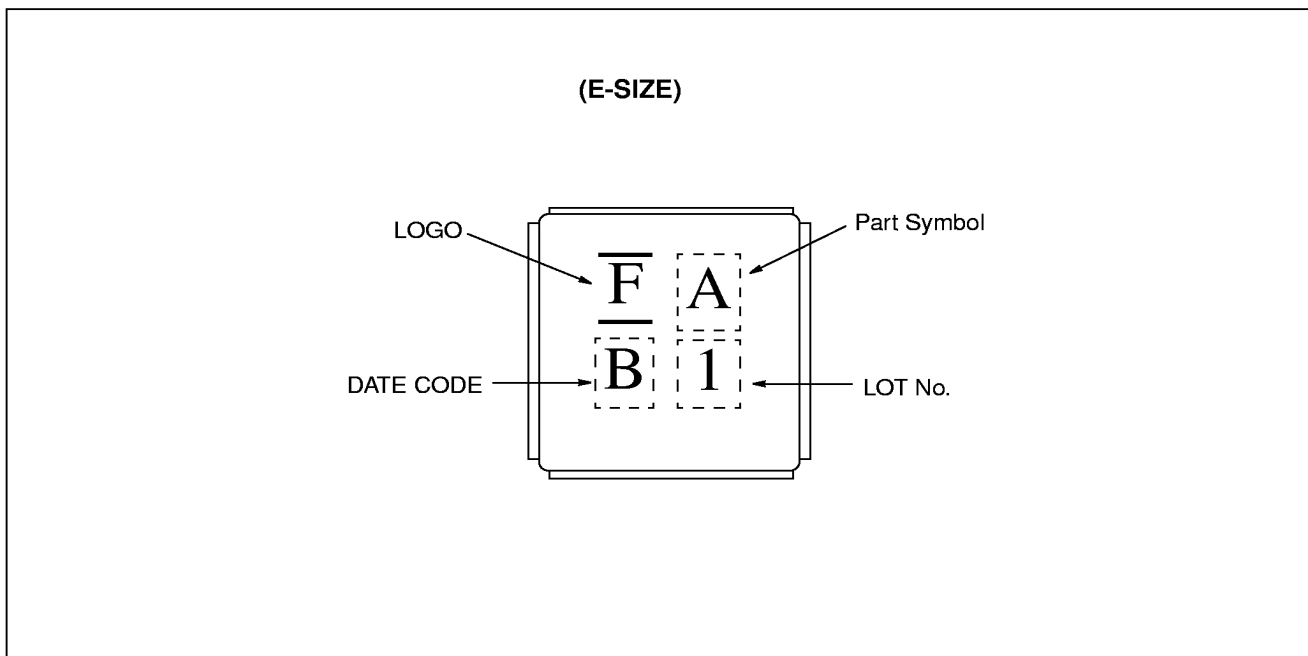
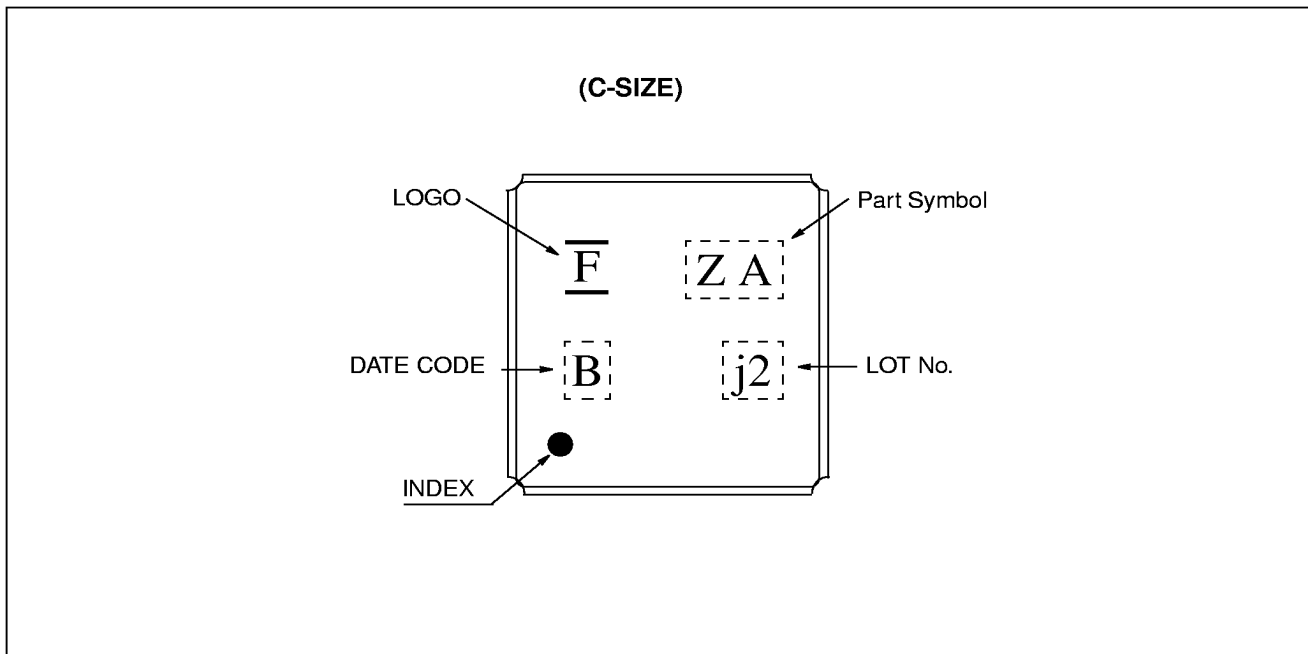


■ PACKAGE DIMENSIONS



*There are some package types that don't have this notch.

■ MARKING

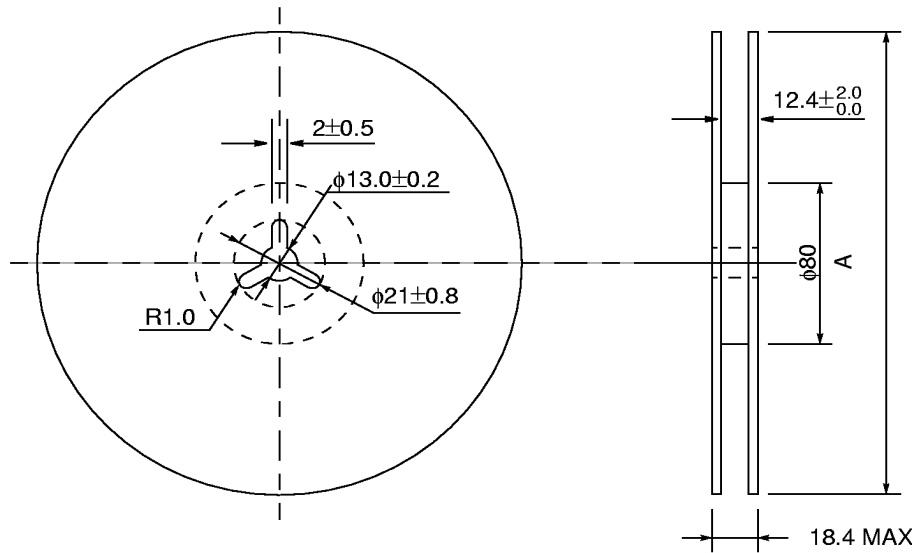


F6 Series (L2)



PACKING : Reel type

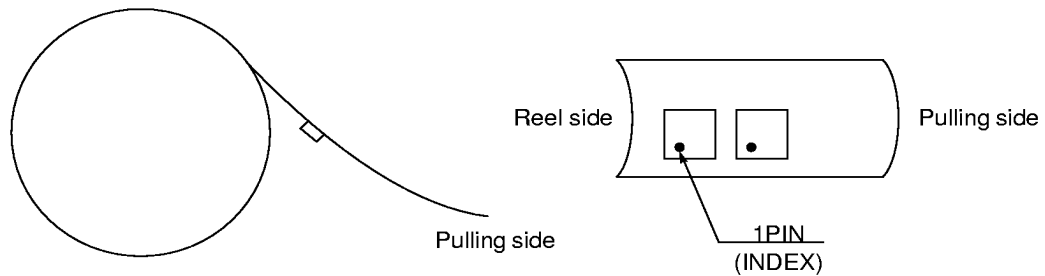
(1) Reel dimensions



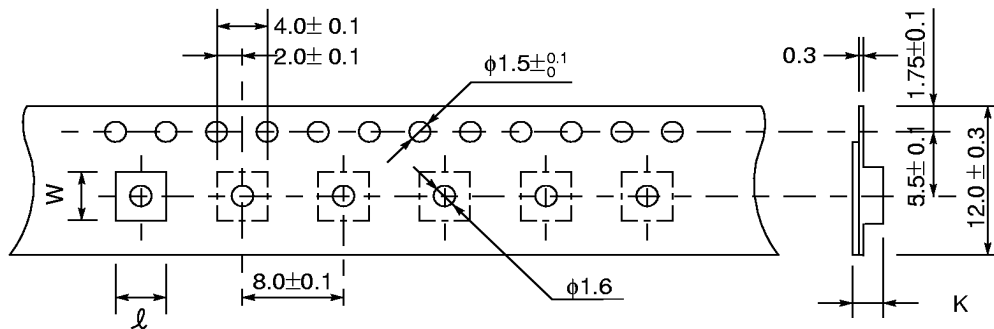
Type	A	Volume
-T	250	1 Kpcs
-R	330	3 Kpcs

Dimensions in mm.

(2) Packing style



(3) Tape dimensions



Package	l	W	K
C	4.2 ± 0.1	4.2 ± 0.1	1.8
E	3.4 ± 0.1	3.4 ± 0.1	1.5

Unit : mm

Dimensions in mm.