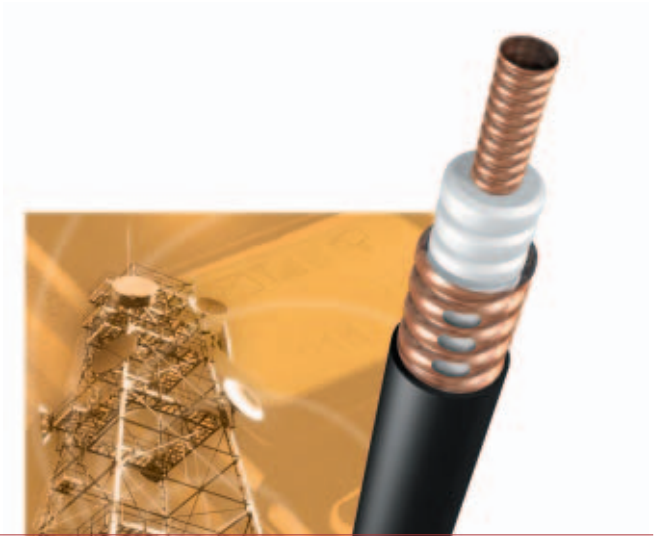
RF CABLE

RCX • HFX • LCX Systems



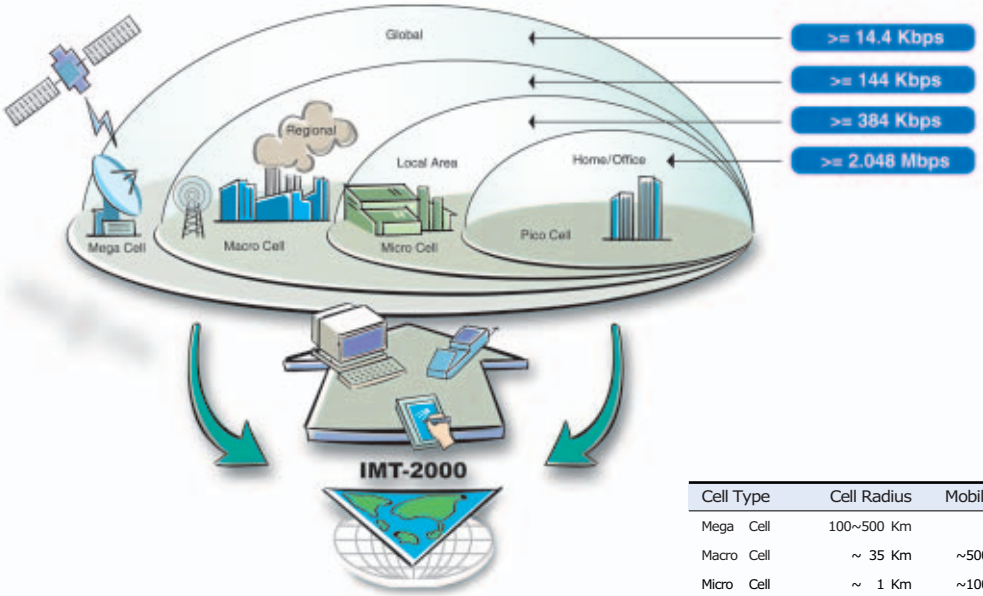
for Wireless Base Station Applications, RF Cable

TAIHAN ELECTRIC WIRE CO., LTD.

IMT-2000 Service

Wireless telecommunications cables from Taihan Electric Wire Co., Ltd. (TAIHAN) are applied for the correct operation of complex information in a short time, thus providing maximum comfort to man and society.

TAIHAN offers solutions for wireless telecommunications cables, ranging from supply to installation, permitting the use of pagers, cellular phones, PCS, broadcast reception, wireless communication service, IMT-2000 and WLL in tunnels, subways, basements and underground markets where ground radio waves can not pass. By supplying quality products and installation works to every corner of the globe as well as to the domestic market, TAIHAN plays an important role in the construction of a telecommunications network in the global village.



Cell Type	Cell Radius	Mobile Speed
Mega Cell	100~500 Km	
Macro Cell	~ 35 Km	~500 km/hr
Micro Cell	~ 1 Km	~100 km/hr
Pico Cell	~100 m	~ 10 km/hr

목 차

RCX Cable

(Radiation High Foamed Coaxial Cable)

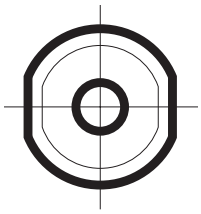
Connector

Radiation Highly Foamed Coaxial Cables (RCX) are made with a highly foamed insulation covered with slotted corrugated Copper (Cu) pipe, an external conductor.

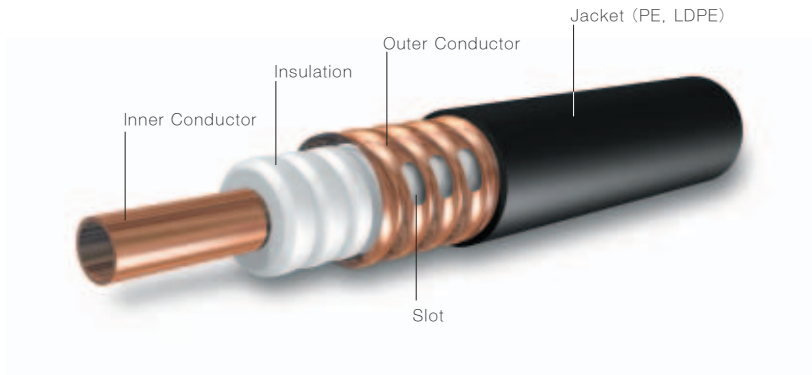
Compared with other air-insulation cables, they are specially designed to achieve low loss and improved VSWR and characteristic impedance. The external conductor has cylindrical or spiral corrugation to provide flexibility and prevents a snap and moisture permeation. At present, they are widely used for mobile telecommunications, including cellular phone, PCS, WLL and IMT-2000 services.

Unlike LCX cables operating only at specific frequency bands, RCX cables operate at wide-band frequency by slotting the external conductor of the feeder at a regular interval.

Construction



Cross-section



Electrical Properties

Item \ Range (MHz)	Nominal Attenuation (dB/100m)							Coupling Loss (Max. Avg. dB)						Characteristic Impedance (Z0, Ω)
	90	150	320	450	900	1800	2000	150	320	450	900	1800	2400	
RCX-12D(1/2")	3.0	3.6	6.6	8.2	11.8	17.9	18.9	80	80	81	83	85	86	50±2
RCX-22D(7/8")	1.6	1.8	3.3	3.6	5.5	7.6	8.8	80	80	81	83	85	86	
RCX-32D(1 1/4")	1.1	1.3	2.3	2.8	4.3	5.9	6.9	69	72	76	81	83	86	
RCX-42D(1 5/8")	0.9	1.1	1.8	2.0	3.3	4.6	5.4	71	74	78	82	87	90	

Cable Specification

Item		RCX-42D(1 5/8")	RCX-32D(1 1/4")	RCX-22D(7/8")	RCX-12D(1/2")
Inner Conductor	Material	Corrugated Copper Pipe	Copper Tube		Copper Clad Aluminum or Solid Cu
	Diameter	17.3mm	13.1mm	9.0mm	4.9mm
Insulation	Material	Highly Foamed Polyethylene			
	Diameter	42.0mm	32.5mm	22.5mm	12.5mm
Outer Conductor	Material	Corrugated / Slotted Copper Tube			
	Diameter	46.5mm	36.0mm	24.9mm	13.8mm
Jacket	Material	Black Polyethylene			
	Diameter	50.0mm	39.0mm	27.9mm	15.6mm
Min. Bending Radius		510mm	380mm	250mm	150mm

* Note : Other designs are available on request.

Connector Application

Item	Model No.	Remarks
For RCX Connector	N-J-42	For RCX-42D (For IMT-2000 and WLL)
	N-J-32	For RCX-32D (For IMT-2000 and WLL)
	N-J-22	For RCX-22D (For PCS)
	N-J-12	For RCX-12D

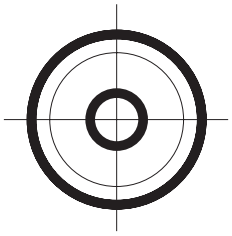
HFX Cable

(High Frequency Coaxial Cable)

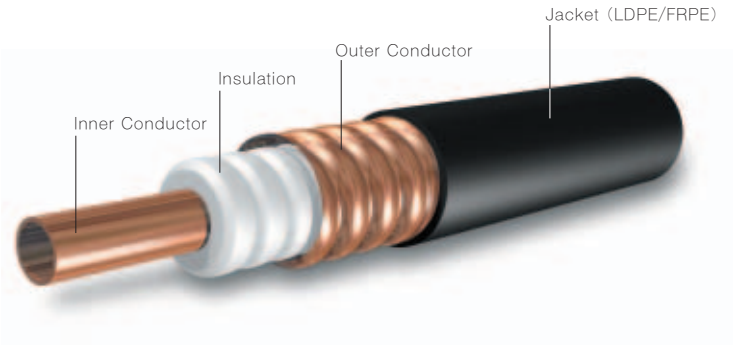
Feeder Cables used for mobile telecommunications base station are coaxial cables with external conductors including highly foamed insulation and corrugated Cu pipe.

The lower transmission loss is, the higher the quality. Highly Frequency coaxial cable (HFX) is an important criterion for high-performance base station. It transmits input signals with low loss by connecting leaky coaxial cables (LCX, RCX) to antennas and transmission equipment.

Construction



Cross-section



Electrical Properties

Item \ Range (MHz)	Nominal Attenuation (dB/100m)									VSWR	Characteristic Impedance (Zo, Ω)
	100	200	300	450	800	1000	1800	2000	2300		
HFX-42D(1 5/8")	0.67	0.98	1.24	1.55	2.14	2.44	3.55	3.72	4.07	below 1.2	Avg. 50±1
HFX-32D(1 1/4")	0.83	1.21	1.51	1.91	2.59	2.95	4.18	4.43	4.82	below 1.2	Avg. 50±1
HFX-22D(7/8")	1.19	1.72	2.14	2.67	3.08	4.18	5.76	6.21	6.73	below 1.2	Avg. 50±1
HFX-12D(1/2")	2.14	3.08	3.80	4.75	6.50	7.31	10.1	10.7	11.5	below 1.2	Avg. 50±1
HFSF-12D(1/2")	3.44	4.92	6.12	7.59	10.5	11.6	17.0	17.7	19.2	below 1.2	Avg. 50±1
ECX-10D 2GV	62	80	125	152	205	235	-	-	-	below 1.2	Avg. 50±1

- : No test

Cable Specification

Item		HFX-42D(1 5/8")	HFX-32D(1 1/4")	HFX-22D(7/8")	HFX-12D(1/2")	HFSF-12D(1/2")	ECX-10D 2GV
Inner Conductor	Material	Corrugated Copper Tube	Copper Tube		CCA (Copper Clad Aluminum) or Solid Cu		Solid Cu
	Diameter	17.3mm	13.1mm	9.0mm	4.9mm	3.6mm	2.9mm
Insulation	Material	Highly Foamed Polyethylene					Solid PE
	Diameter	42.0mm	32.5mm	22.5mm	12.0mm	8.6mm	9.7mm
Outer Conductor	Material	Corrugated Copper Tube					Copper Braid
	Diameter	46.5mm	36.0mm	24.9mm	13.8mm	11.4mm	11.2mm
Jacket	Material	Black Polyethylene					
	Diameter	50.0mm	39.0mm	27.9mm	16.0mm	13.6mm	13.6mm
Min. Bending Radius		510mm	380mm	250mm	70mm	30mm	70mm

* Note : Other designs are available on request.

Connector Application

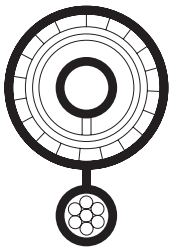
Item	Model No.	Remarks
For HFX Connector	N-J-42	For HFX-42D
	N-J-32	For HFX-32D
	N-J-22	For HFX-22D
	N-J-12	For HFX-12D and HFSF-12D
	Din(7/16)-J-22	For HFX-22D (Annular type)
	Din(7/16)-P-12	For HFX-12D and HFSF-12D

누설동축케이블
LCX Cable
(Leaky Coaxial Cable)

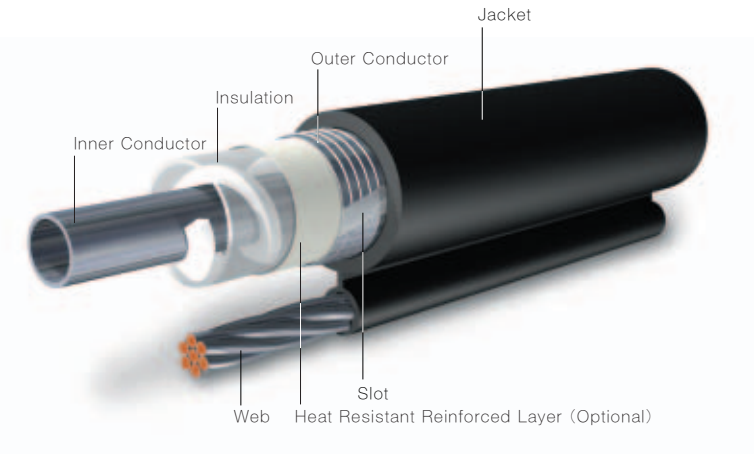
Leaky Coaxial Cable (LCX) allows wireless pager, cellular phone, wireless fire-fighting telecommunications, car phone, broadcast reception and wireless communications services in the areas such as tunnels, subways, basements and underground markets, where ground radio waves can not pass. With slotted external conductor, this cable leaks the radio waves with stable characteristics.

Featuring flexibility, it provides optimum performance as a transmission media to get rid of radio wave shadow area that is generated in antenna telecommunication system.

Construction



Cross-section



Electrical Properties

Item \ Range (MHz)		Nominal Attenuation (dB/km)					Nominal Coupling Loss (dB)				
		90	150	320	450	900	90	150	320	450	900
LCX-FR-SS 20D	146	20	25	55	-	-	70	60	55	-	-
LCX-FR-SS 32D	147	11	17	33	-	-	80	70	65	-	-
LCX-FR-SS 42D	1486	10	14	27	55	72	70	65	60	60	65
	1487	9	13	24	40	60	80	75	70	70	75
	1488	9	12	18	38	58	85	80	74	74	80

- : No test

Cable Specification

Item			LCX-FR-SS 42D	LCX-FR-SS 32D	LCX-FR-SS 20D
Inner Conductor	Material		Al Pipe		Cu-Rod
	Thickness		1.2mm	1.2mm	-
	Diameter		17.3mm	13.0mm	8.0mm
Insulation	Material		PE-Helical+PE Tube		
	Diameter		42.0mm	32.0mm	20.0mm
Outer Conductor	Material		Laminated Al Slot Tape		
	Diameter		45.0mm	35.0mm	23.0mm
Jacket	Material		PE, PVC or FR-PE Sheath		
	Cable	Thickness	2.5mm	2.5mm	2.0mm
		Diameter	50.0mm	40.0mm	27.0mm
	Web	Stranded Steel Wire	7/ϕ2.6	7/ϕ2.0	7/ϕ1.6
		Thickness	2.0mm	2.0mm	1.5mm
		Diameter	11.8mm	10.0mm	7.8mm
	Neck	Height	3.0mm	3.0mm	2.5mm
		Width	3.0mm	3.0mm	2.5mm

Connector Application

Item	Model No.	Remarks
For LCX Connector	N-J-42	For LCX-FR-SS 42D
	N-J-32	For LCX-FR-SS 32D
	N-J-20	For LCX-FR-SS 20D
	N-P-10	For ECX-10D 2GV

Guide to Wireless Telecommunication Systems

Wireless telecommunications (RCX, HFX, LCX) system permits various telecommunications in underground areas where radio wave can not pass and in shadow areas.

Fire-Fighting Telecommunications System (Wireless Telecommunication Auxiliary Facilities)

Cables To Be Used

RCX-12D/22D, LCX-FR-SS 20D-146 : Cables for constructing most economical system.

LCX-FR-SS 42D-1486/1487/1488 : Cables for installation in wide area.
If LCX-FR-SS 42D-1486 wide band cable is applied to fire-fighting wireless telecommunications system, complex telecommunications system can be added later.

Train Wireless Telecommunications System

As a wireless telecommunications system for subway operation, this system is installed for smooth communication between engine drivers and base stations of each sections.

Cables To Be Used

RCX-22D, LCX-FR-SS 20D-146 : Cables for constructing most economical system used only for train wireless telecommunications.

RCX-32D, LCX-FR-SS 23D-147 : Cables combining the economical characteristics of 20D and superior features of 42D. At present, they are used for subway line no. 2 of Seoul.

RCX-42D, LCX-FR-SS 42D-1486/1487/1488 : Featuring low loss, these cables allow long distance transmission without repeaters. Due to their superior coupling loss, they ensure outstanding radio reception.

Complex Telecommunications System

This system improves the radio wave usage environment
in underground areas to the same level as that of ground.

Cables To Be Used

RCX-22D/32D, LCX-FR-SS 42D-1486 : 1-line type cables. A set of RCX cable accommodates a wide range of wireless frequency bandwidth from 10MHz to 2.7GHz.

They can be used simultaneously for wireless telecommunications for fire-fighting, police and internal guard and PCS, wireless pager and cellular phone services. They are installed in the areas where ground radio waves can not pass, including underground markets, subway station buildings, interior side of subway railroad tracks and underground parking lots and underpass.

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