FIG. 1

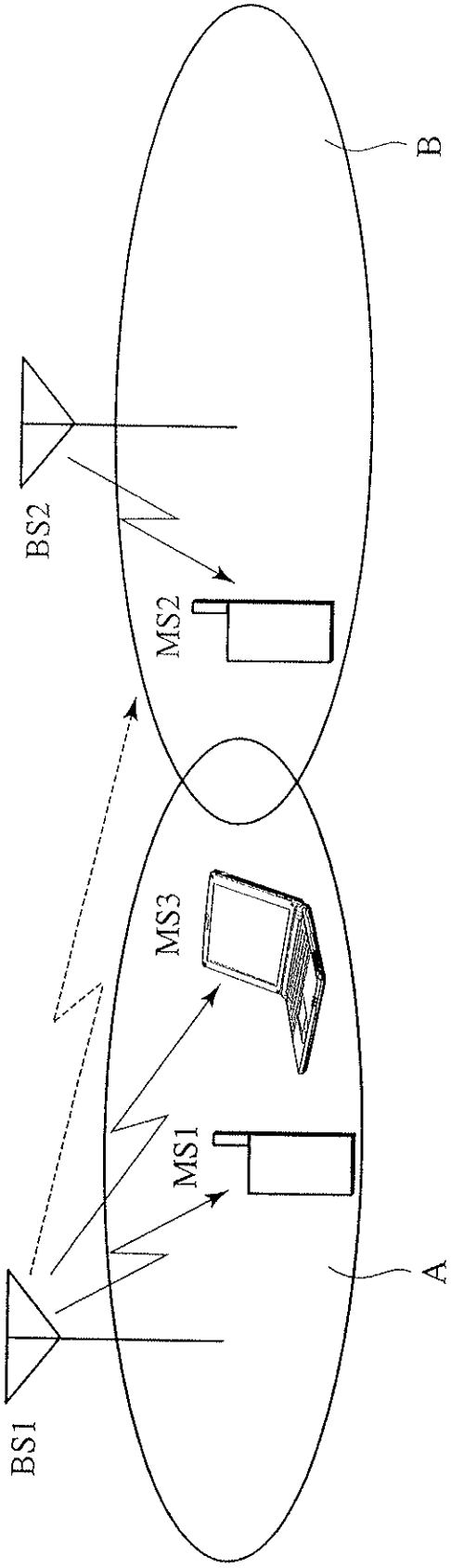


FIG. 2A

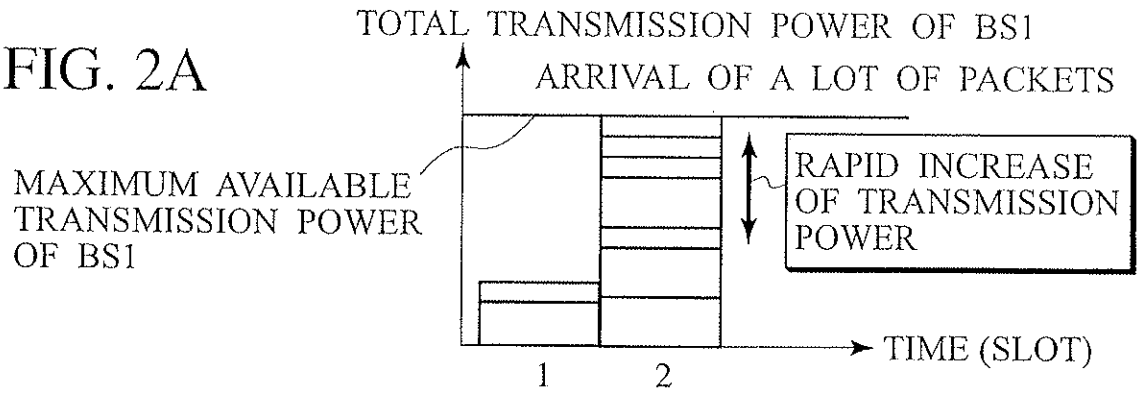


FIG. 2B

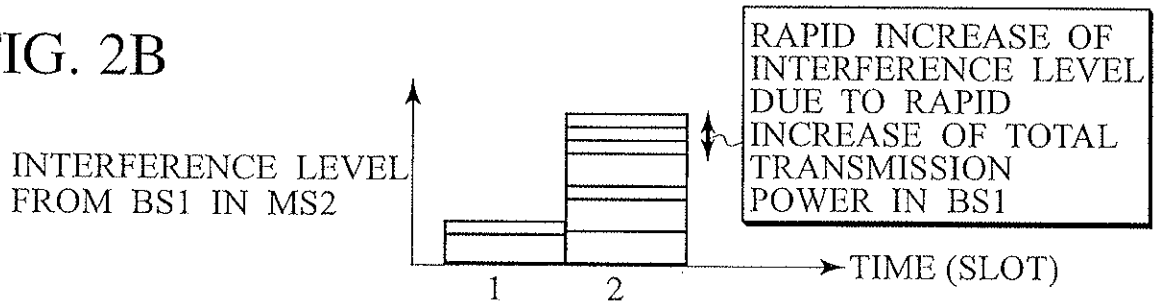


FIG. 2C

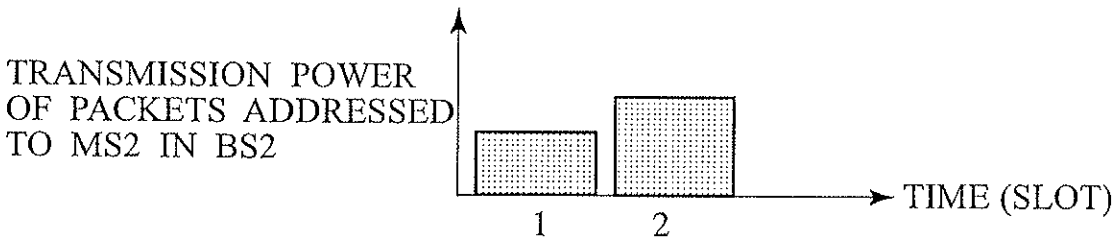


FIG. 2D

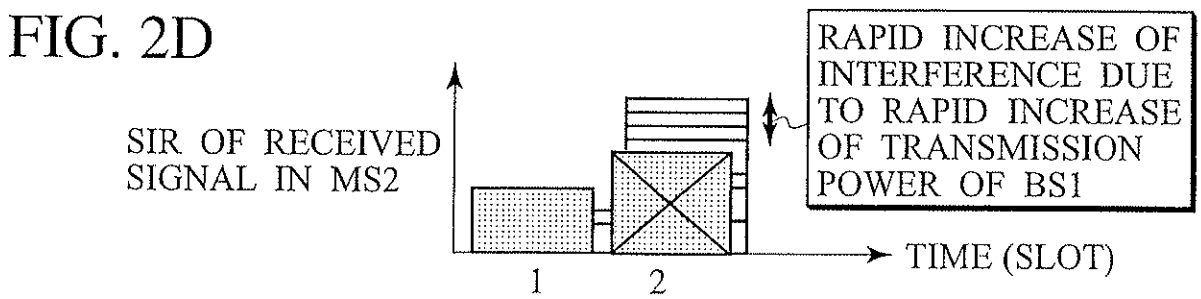


FIG. 3

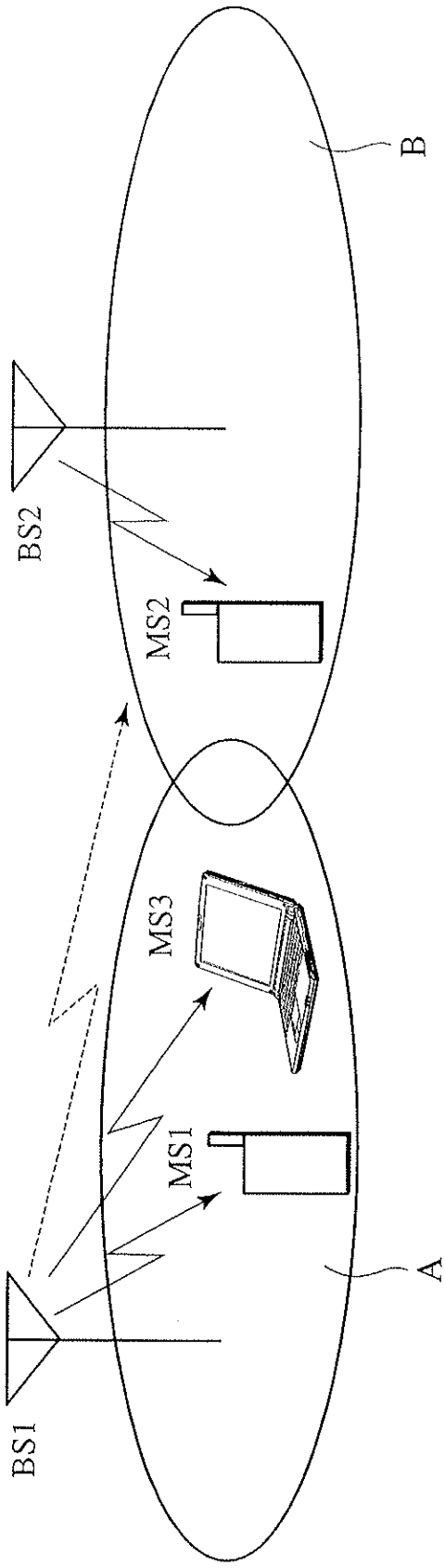


FIG. 4

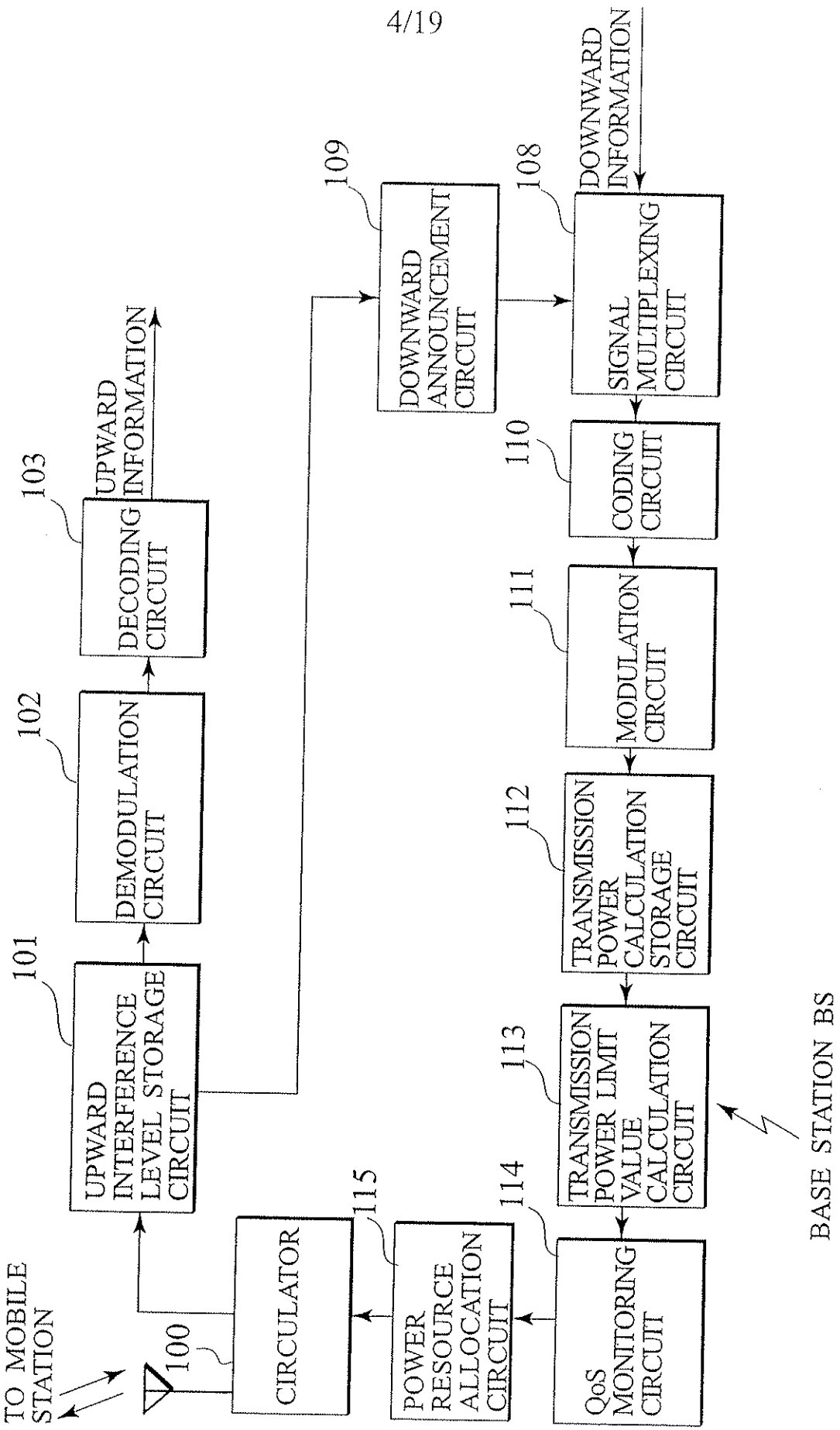

TO MOBILE STATION
100
CIRCULATOR
101
UPWARD INTERFERENCE LEVEL STORAGE CIRCUIT
102
DEMODULATION CIRCUIT
103
DECODING CIRCUIT
UPWARD INFORMATION
109
DOWNWARD ANNOUNCEMENT CIRCUIT
108
SIGNAL MULTIPLEXING CIRCUIT
DOWNWARD INFORMATION
110
CODING CIRCUIT
111
MODULATION CIRCUIT
112
TRANSMISSION POWER CALCULATION STORAGE CIRCUIT
113
TRANSMISSION POWER LIMIT VALUE CALCULATION CIRCUIT
114
QoS MONITORING CIRCUIT
115
POWER RESOURCE ALLOCATION CIRCUIT
BASE STATION BS

FIG. 5A

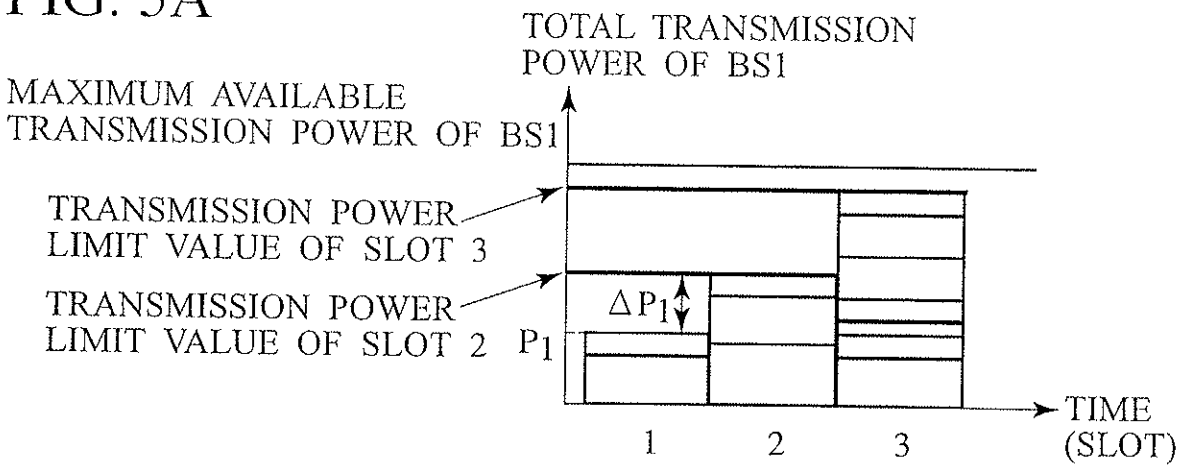


FIG. 5B

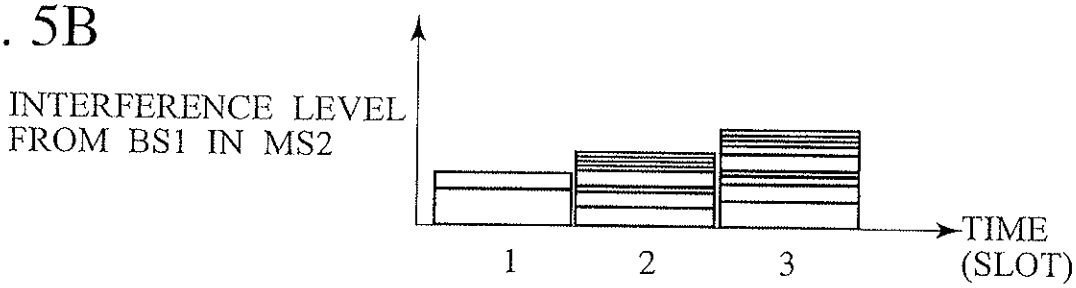


FIG. 5C

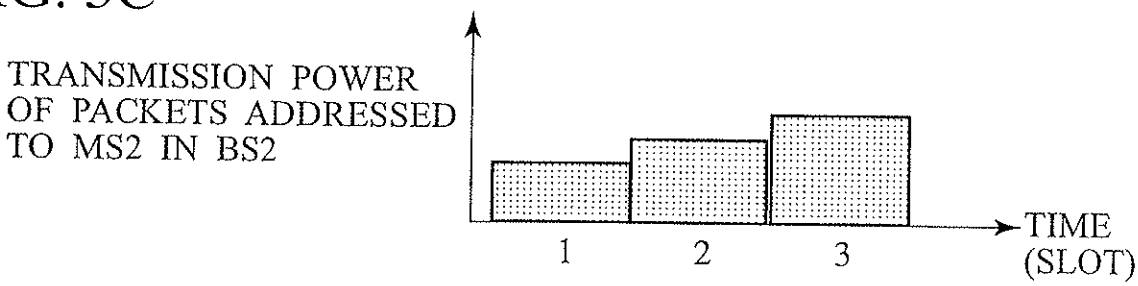


FIG. 5D

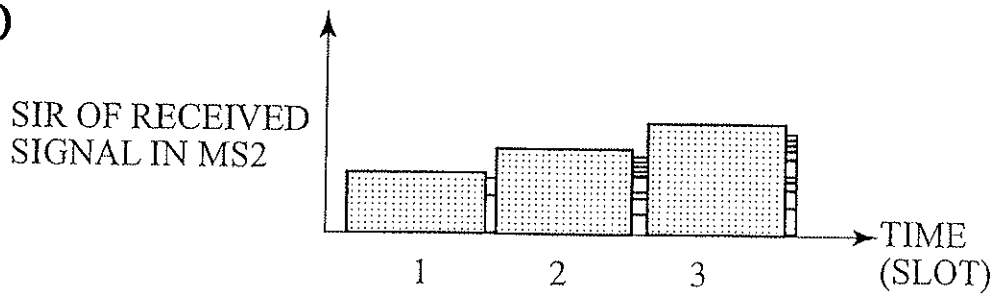


FIG. 6A

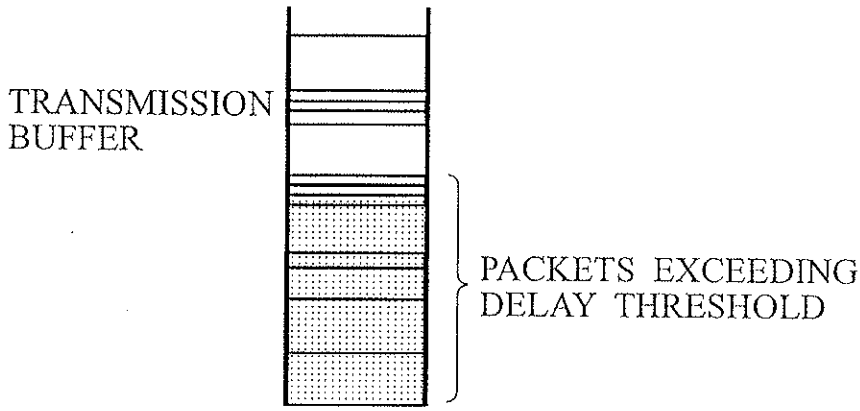

TRANSMISSION
BUFFER
PACKETS EXCEEDING
DELAY THRESHOLD

FIG. 6B

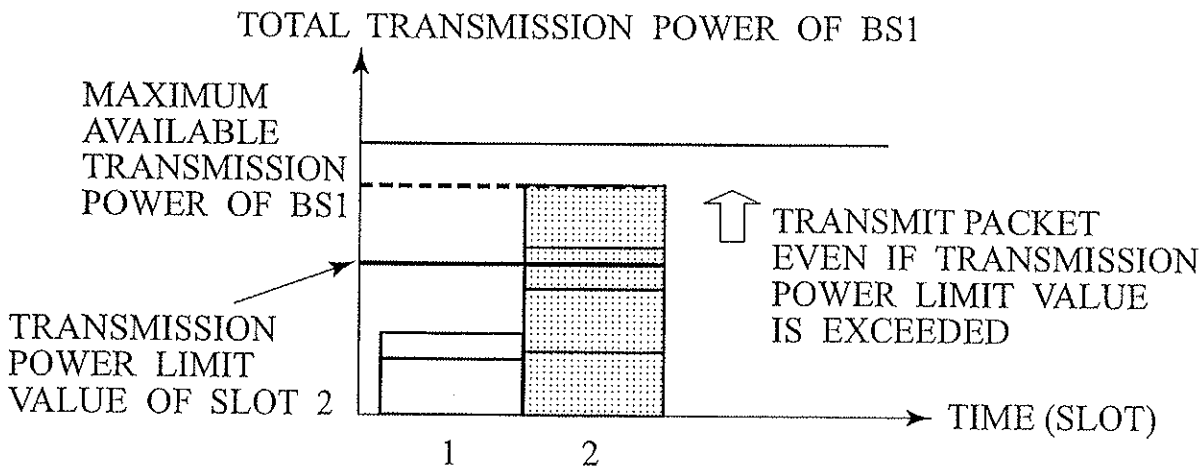

TOTAL TRANSMISSION POWER OF BS1
MAXIMUM
AVAILABLE
TRANSMISSION
POWER OF BS1
TRANSMIT PACKET
EVEN IF TRANSMISSION
POWER LIMIT VALUE
IS EXCEEDED
TRANSMISSION
POWER LIMIT
VALUE OF SLOT 2
TIME (SLOT)
1
2

FIG. 7

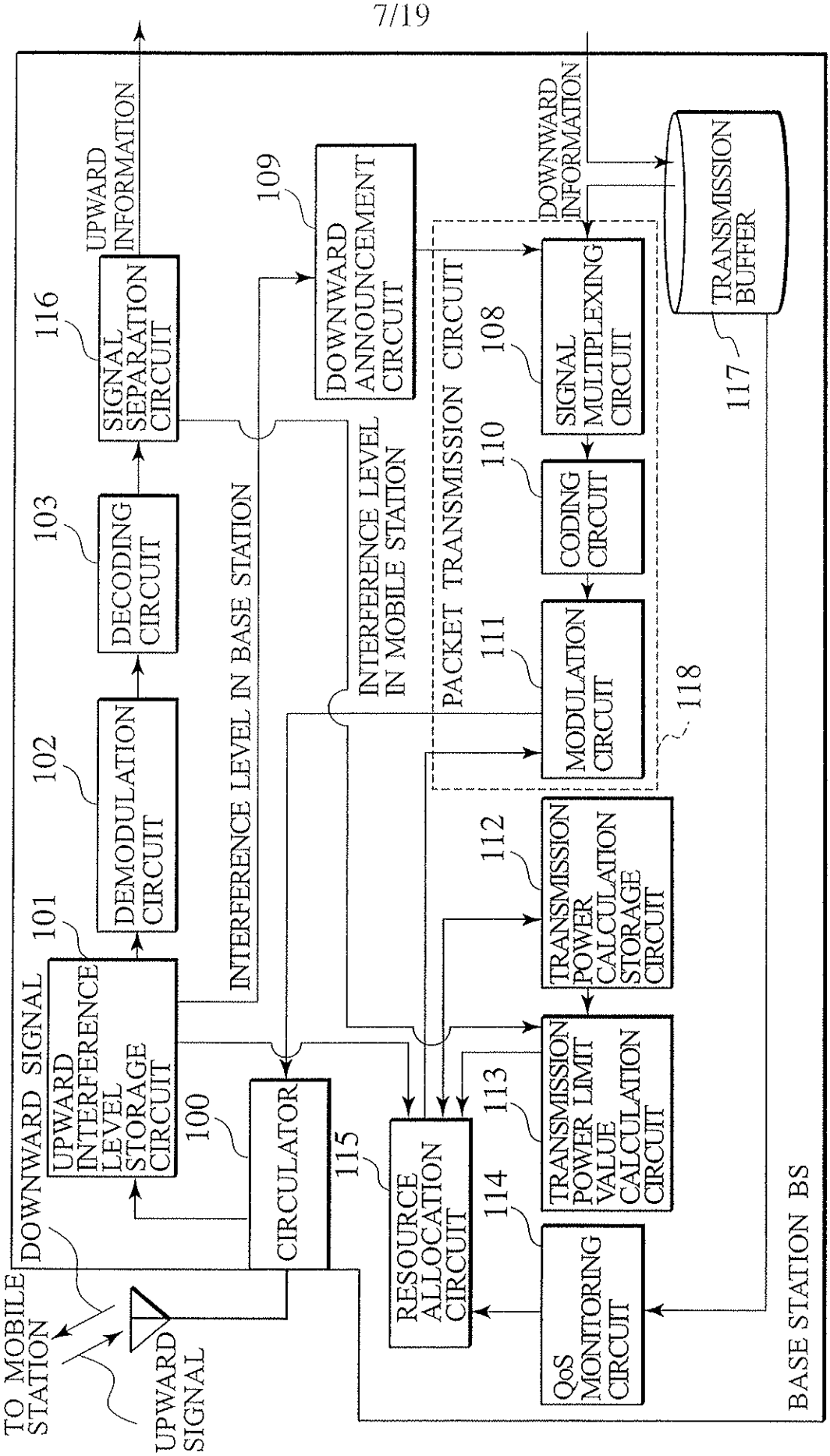

TO MOBILE STATION
UPWARD SIGNAL
DOWNWARD SIGNAL
UPWARD INFORMATION
DOWNWARD INFORMATION
BASE STATION BS
UPWARD INTERFERENCE LEVEL STORAGE CIRCUIT
101
DEMODULATION CIRCUIT
102
DECODING CIRCUIT
103
SIGNAL SEPARATION CIRCUIT
116
DOWNWARD ANNOUNCEMENT CIRCUIT
109
SIGNAL MULTIPLEXING CIRCUIT
108
CODING CIRCUIT
110
MODULATION CIRCUIT
111
TRANSMISSION BUFFER
117
CIRCULATOR
100
115
RESOURCE ALLOCATION CIRCUIT
114
TRANSMISSION POWER LIMIT VALUE CALCULATION CIRCUIT
113
TRANSMISSION POWER CALCULATION STORAGE CIRCUIT
112
QoS MONITORING CIRCUIT
INTERFERENCE LEVEL IN BASE STATION
INTERFERENCE LEVEL IN MOBILE STATION
PACKET TRANSMISSION CIRCUIT
118

FIG. 8

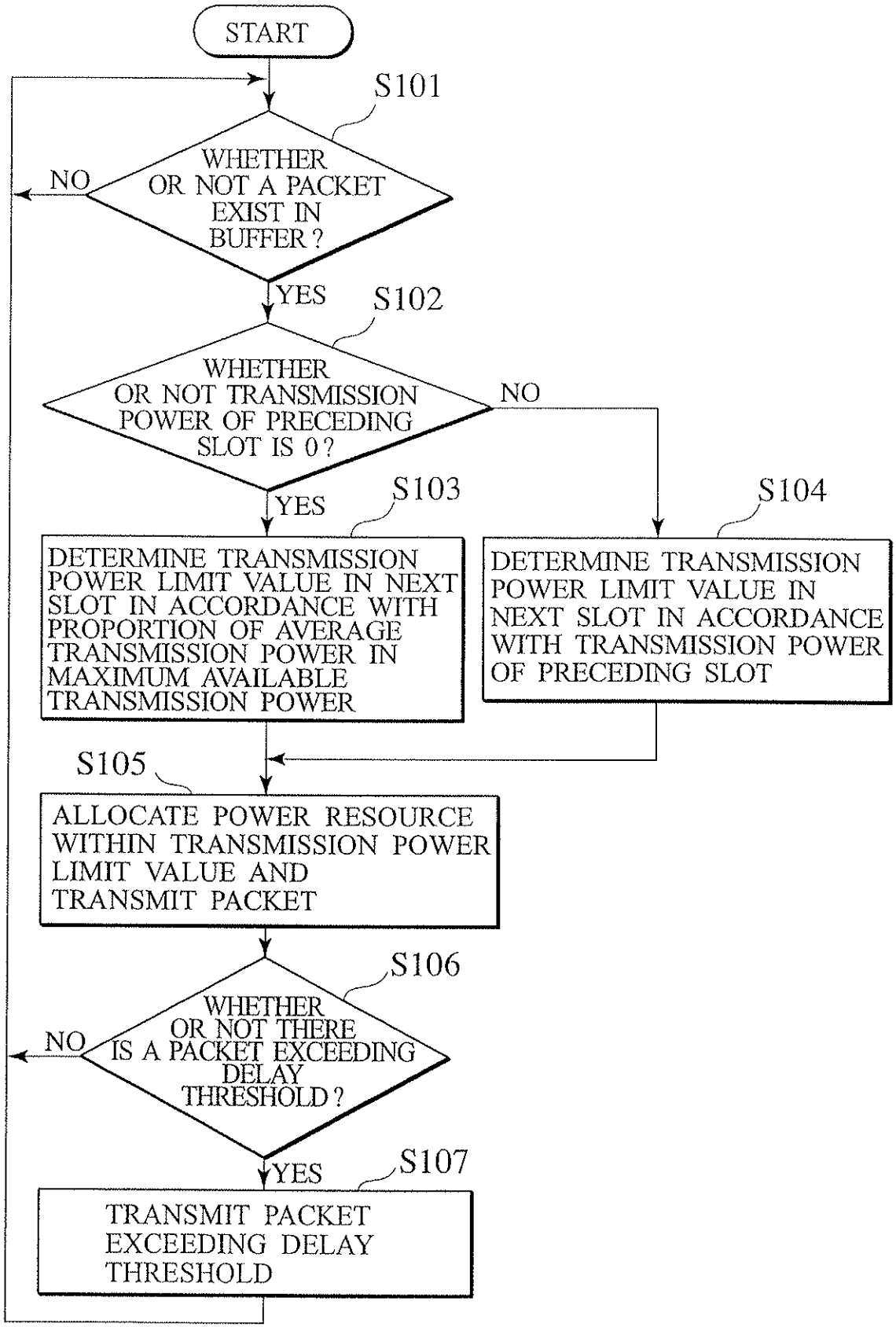

START
S101
WHETHER OR NOT A PACKET EXIST IN BUFFER ?
NO
YES
S102
WHETHER OR NOT TRANSMISSION POWER OF PRECEDING SLOT IS 0 ?
NO
YES
S103
DETERMINE TRANSMISSION POWER LIMIT VALUE IN NEXT SLOT IN ACCORDANCE WITH PROPORTION OF AVERAGE TRANSMISSION POWER IN MAXIMUM AVAILABLE TRANSMISSION POWER
S104
DETERMINE TRANSMISSION POWER LIMIT VALUE IN NEXT SLOT IN ACCORDANCE WITH TRANSMISSION POWER OF PRECEDING SLOT
S105
ALLOCATE POWER RESOURCE WITHIN TRANSMISSION POWER LIMIT VALUE AND TRANSMIT PACKET
S106
WHETHER OR NOT THERE IS A PACKET EXCEEDING DELAY THRESHOLD ?
NO
YES
S107
TRANSMIT PACKET EXCEEDING DELAY THRESHOLD

FIG. 9

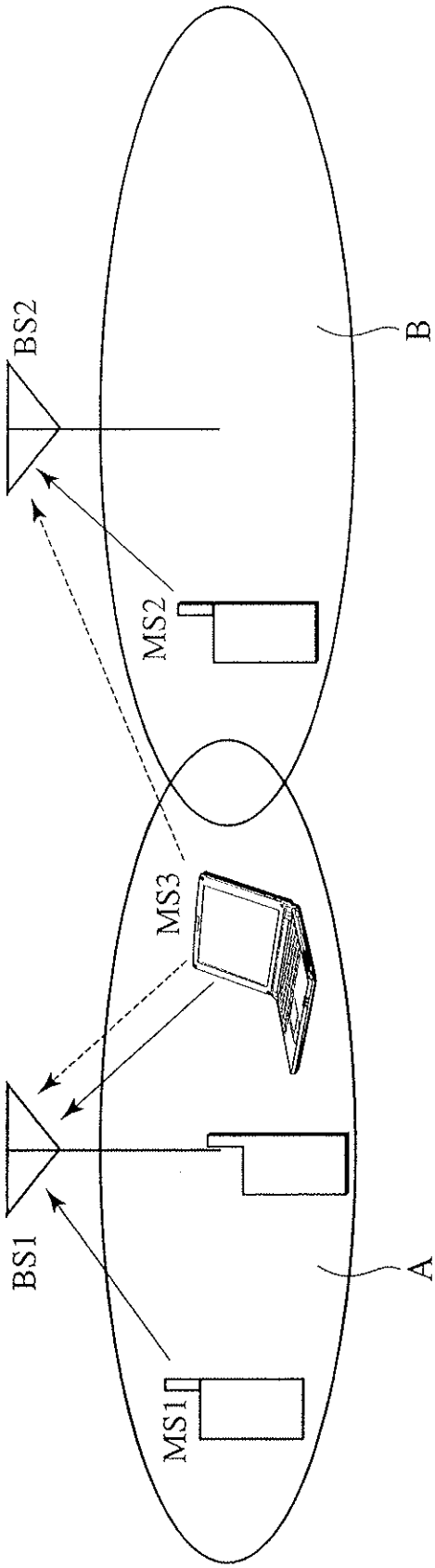


FIG. 10

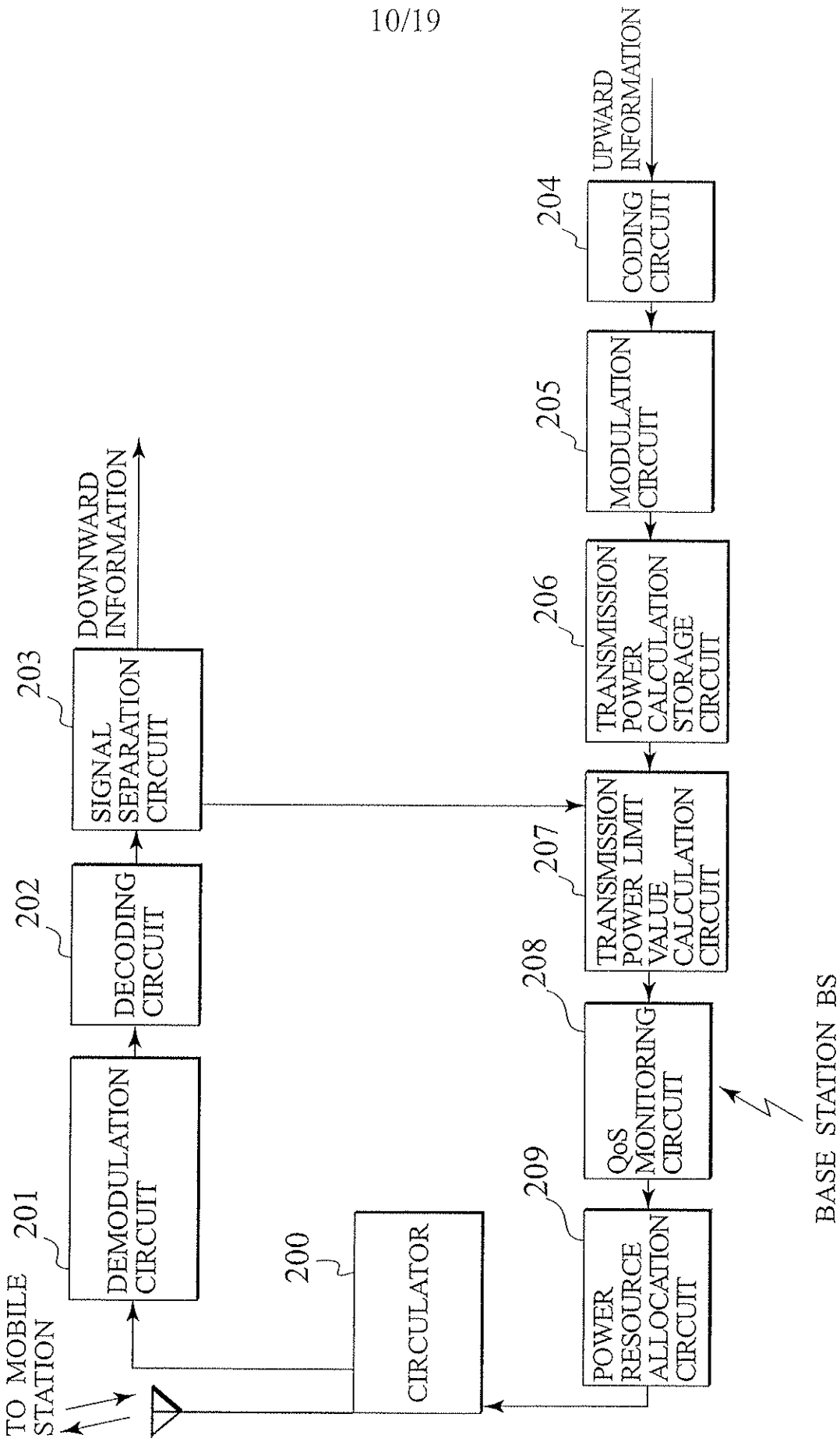

TO MOBILE STATION
201
DEMODULATION CIRCUIT
202
DECODING CIRCUIT
203
SIGNAL SEPARATION CIRCUIT
DOWNWARD INFORMATION
200
CIRCULATOR
204
CODING CIRCUIT
UPWARD INFORMATION
205
MODULATION CIRCUIT
206
TRANSMISSION POWER CALCULATION STORAGE CIRCUIT
207
TRANSMISSION POWER LIMIT VALUE CALCULATION CIRCUIT
208
QoS MONITORING CIRCUIT
209
POWER RESOURCE ALLOCATION CIRCUIT
BASE STATION BS

FIG. 11A

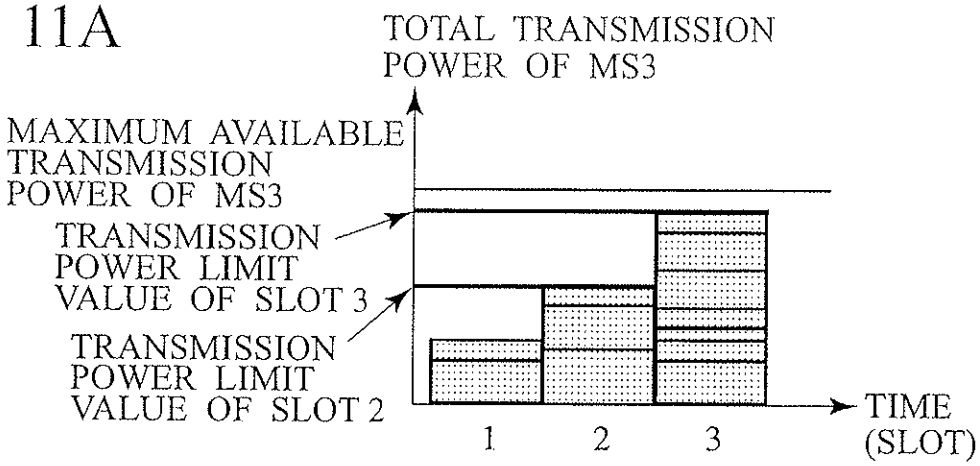


FIG. 11B

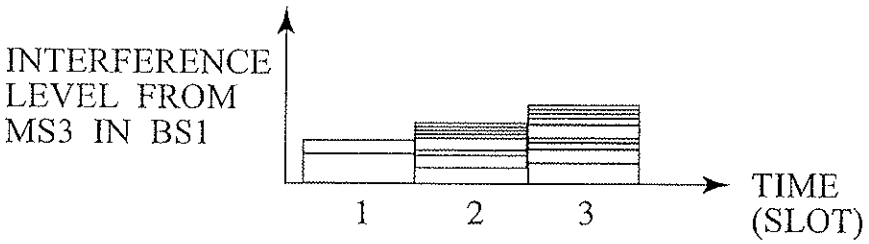


FIG. 11C

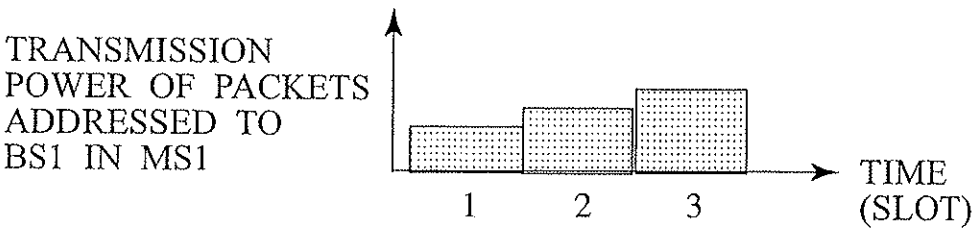


FIG. 11D

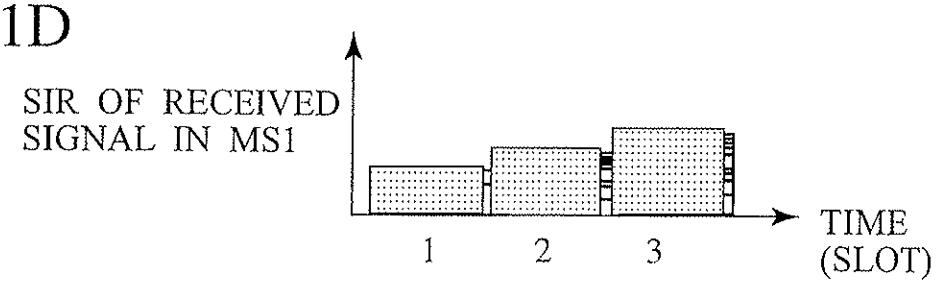


FIG. 11E

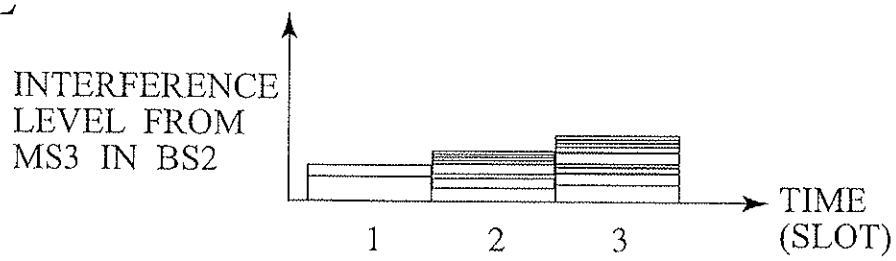


FIG. 11F

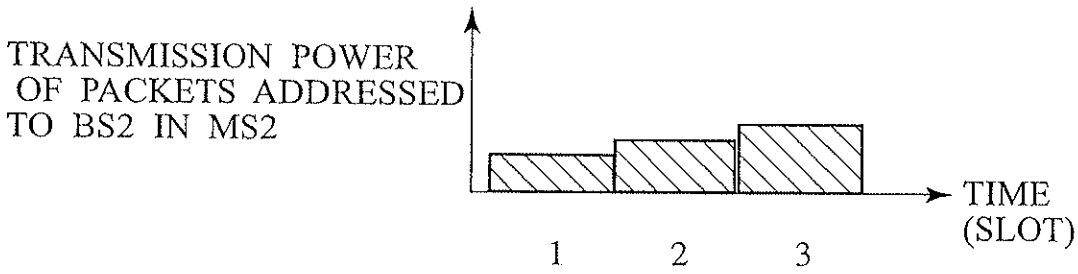


FIG. 11G

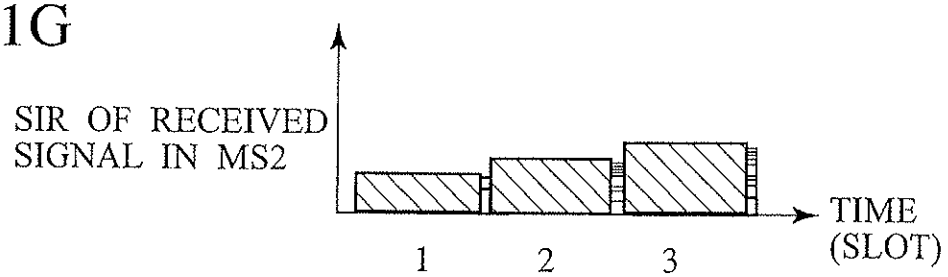


FIG. 12

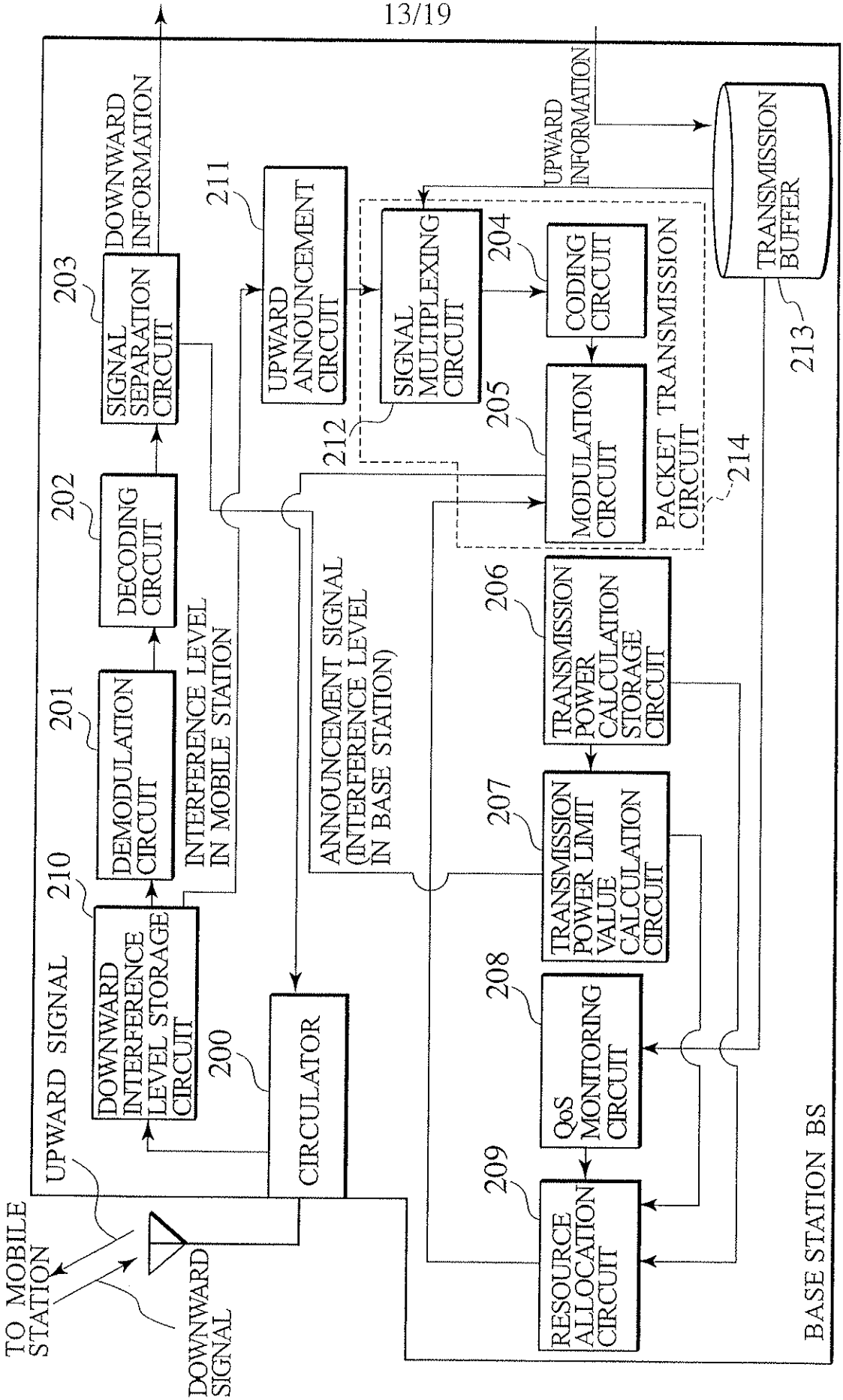

TO MOBILE STATION
DOWNWARD SIGNAL
UPWARD SIGNAL
BASE STATION BS
CIRCULATOR
200
DOWNWARD INTERFERENCE LEVEL STORAGE CIRCUIT
210
DEMODULATION CIRCUIT
201
DECODING CIRCUIT
202
SIGNAL SEPARATION CIRCUIT
203
DOWNWARD INFORMATION
INTERFERENCE LEVEL IN MOBILE STATION
ANNOUNCEMENT SIGNAL (INTERFERENCE LEVEL IN BASE STATION)
UPWARD ANNOUNCEMENT CIRCUIT
211
212
SIGNAL MULTIPLEXING CIRCUIT
204
CODING CIRCUIT
MODULATION CIRCUIT
205
PACKET TRANSMISSION CIRCUIT
214
UPWARD INFORMATION
TRANSMISSION BUFFER
213
TRANSMISSION POWER CALCULATION STORAGE CIRCUIT
206
TRANSMISSION POWER LIMIT VALUE CALCULATION CIRCUIT
207
QoS MONITORING CIRCUIT
208
RESOURCE ALLOCATION CIRCUIT
209

FIG. 13

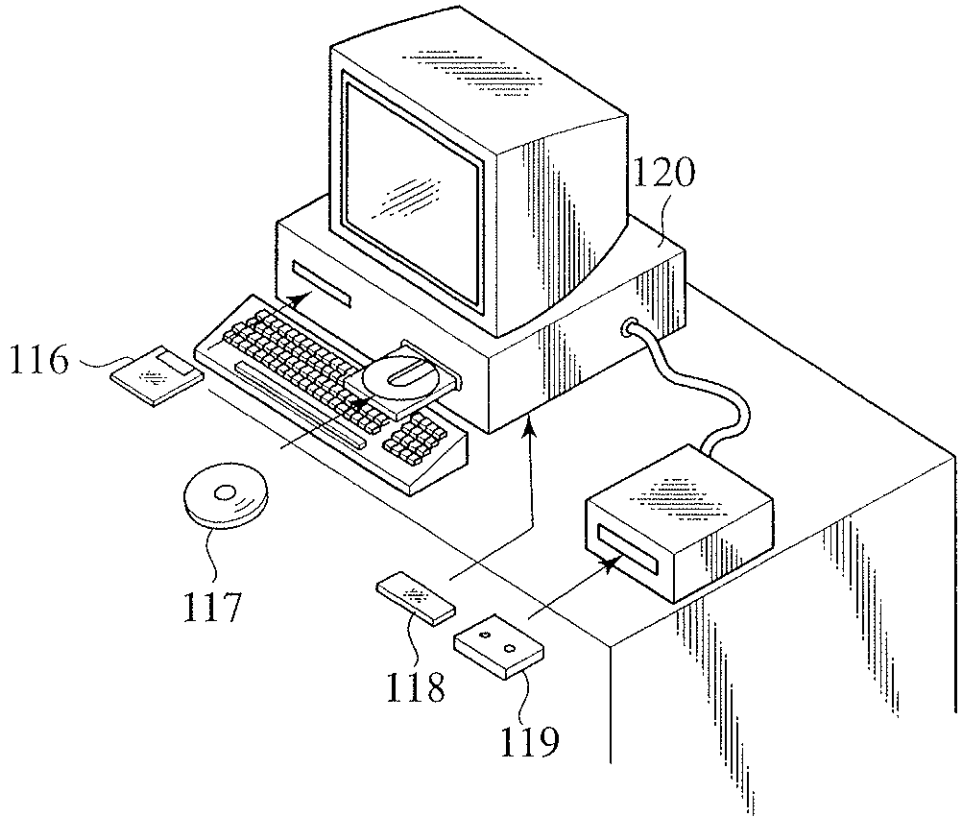


FIG. 14

TRAFFIC LOAD (PROPORTION OF AVERAGE TRANSMISSION POWER IN MAXIMUM AVAILABLE TRANSMISSION POWER)	TRANSMISSION POWER LIMIT VALUE PO_max IN NEXT STEP PERIOD
0～1/3	1/10＊MAXIMUM AVAILABLE TRANSMISSION POWER
1/3～2/3	2/10＊MAXIMUM AVAILABLE TRANSMISSION POWER
2/3～1	3/10＊MAXIMUM AVAILABLE TRANSMISSION POWER

FIG. 15

PROPORTION OF INTERFERENCE LEVEL OF BASE STATION IN MAXIMUM INTERFERENCE LEVEL	IDENTIFICATION SIGNAL INDICATING INTERFERENCE LEVEL	TRANSMISSION POWER LIMIT VALUE IN NEXT STEP PERIOD IN MOBILE STATION
0～1/3	1	1/10＊MAXIMUM AVAILABLE TRANSMISSION POWER
1/3～2/3	2	2/10＊MAXIMUM AVAILABLE TRANSMISSION POWER
2/3～1	3	3/10＊MAXIMUM AVAILABLE TRANSMISSION POWER

FIG. 16

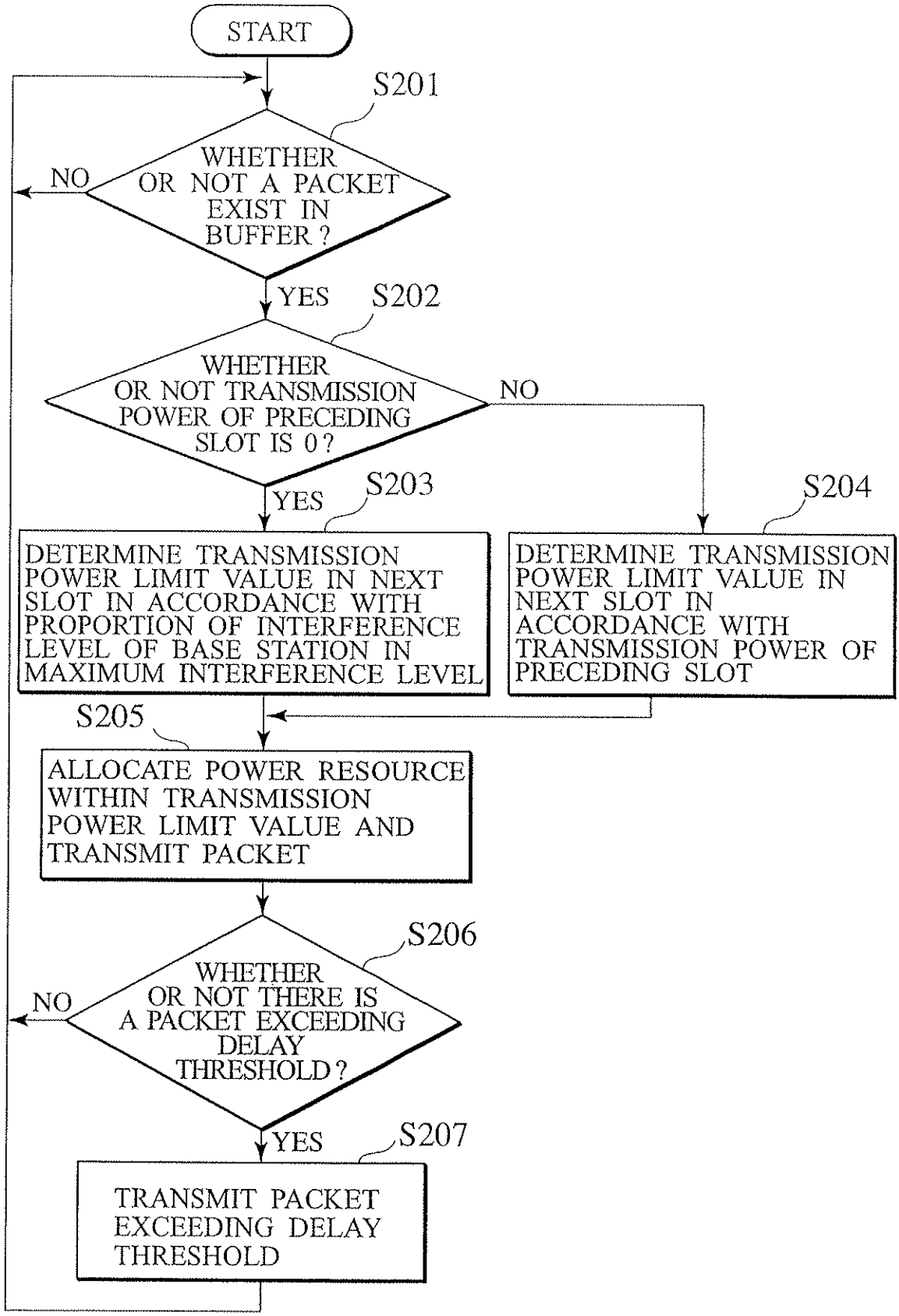

START
S201
WHETHER OR NOT A PACKET EXIST IN BUFFER ?
NO
YES
S202
WHETHER OR NOT TRANSMISSION POWER OF PRECEDING SLOT IS 0 ?
NO
YES
S203
DETERMINE TRANSMISSION POWER LIMIT VALUE IN NEXT SLOT IN ACCORDANCE WITH PROPORTION OF INTERFERENCE LEVEL OF BASE STATION IN MAXIMUM INTERFERENCE LEVEL
S204
DETERMINE TRANSMISSION POWER LIMIT VALUE IN NEXT SLOT IN ACCORDANCE WITH TRANSMISSION POWER OF PRECEDING SLOT
S205
ALLOCATE POWER RESOURCE WITHIN TRANSMISSION POWER LIMIT VALUE AND TRANSMIT PACKET
S206
WHETHER OR NOT THERE IS A PACKET EXCEEDING DELAY THRESHOLD ?
NO
YES
S207
TRANSMIT PACKET EXCEEDING DELAY THRESHOLD

FIG. 17

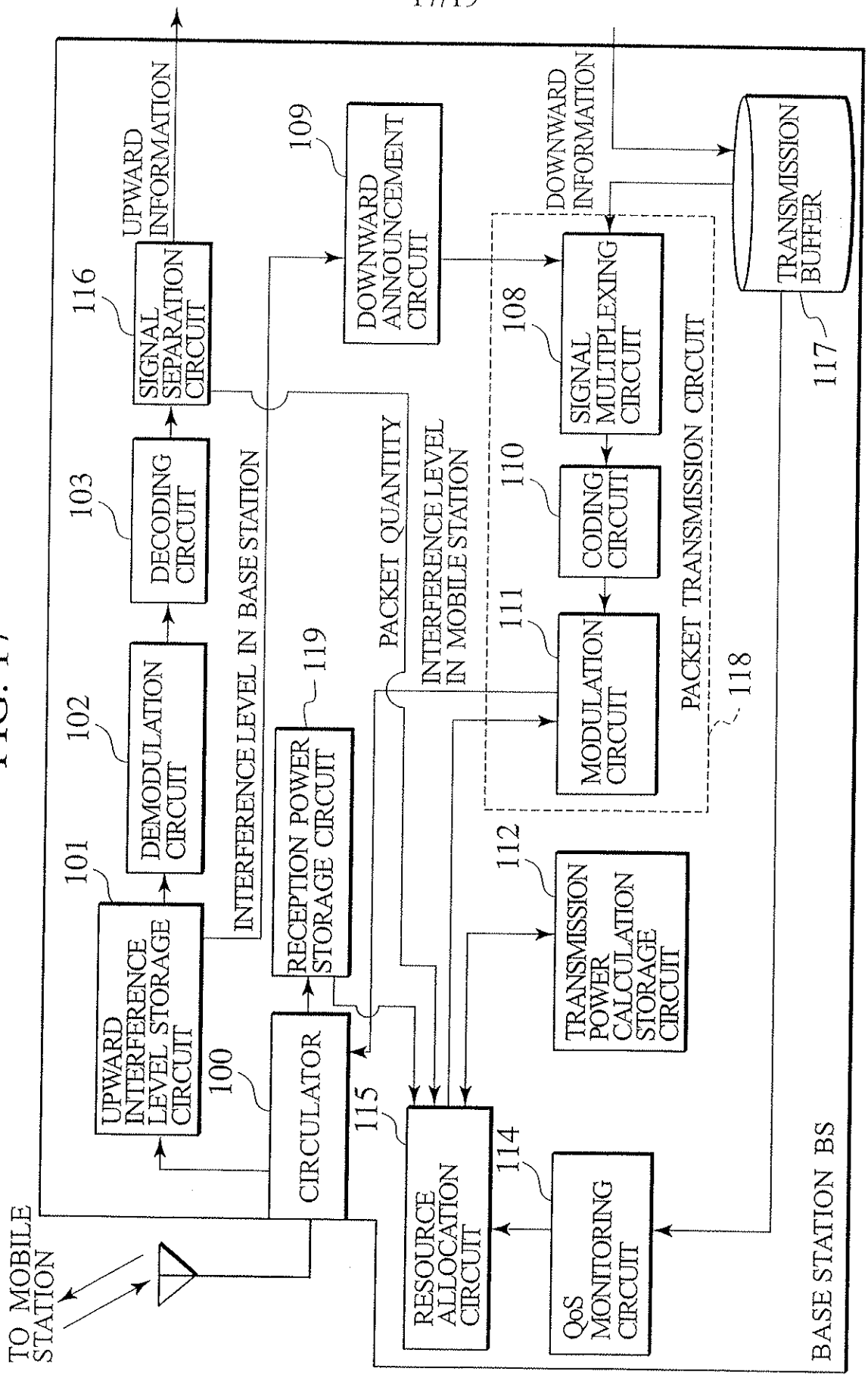

TO MOBILE STATION
BASE STATION BS
UPWARD INFORMATION
DOWNWARD INFORMATION
INTERFERENCE LEVEL IN BASE STATION
PACKET QUANTITY
INTERFERENCE LEVEL IN MOBILE STATION
PACKET TRANSMISSION CIRCUIT
100 CIRCULATOR
101 UPWARD INTERFERENCE LEVEL STORAGE CIRCUIT
102 DEMODULATION CIRCUIT
103 DECODING CIRCUIT
108 SIGNAL MULTIPLEXING CIRCUIT
109 DOWNWARD ANNOUNCEMENT CIRCUIT
110 CODING CIRCUIT
111 MODULATION CIRCUIT
112 TRANSMISSION POWER CALCULATION STORAGE CIRCUIT
114 QoS MONITORING CIRCUIT
115 RESOURCE ALLOCATION CIRCUIT
116 SIGNAL SEPARATION CIRCUIT
117 TRANSMISSION BUFFER
118
119 RECEPTION POWER STORAGE CIRCUIT

FIG. 18

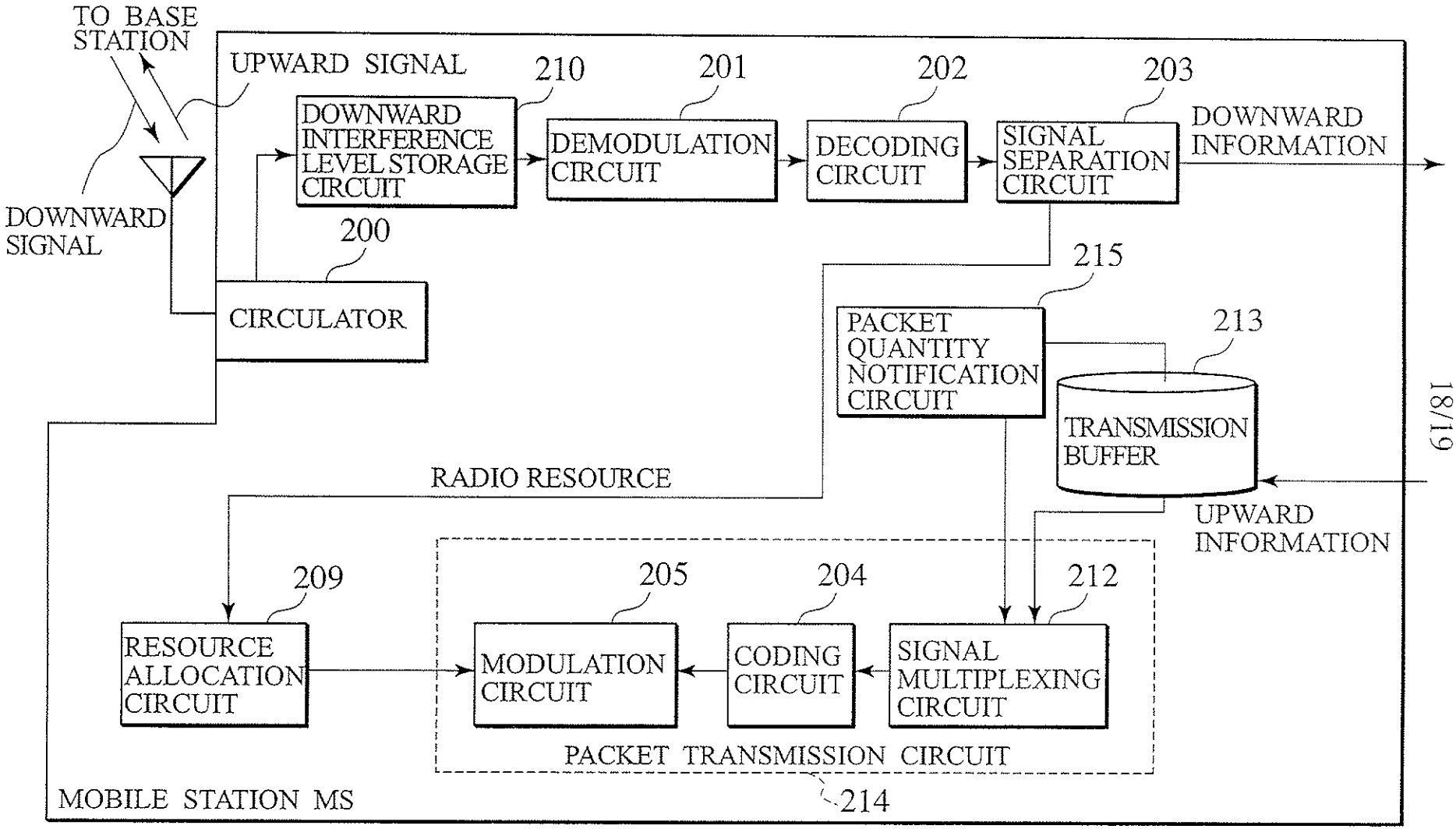
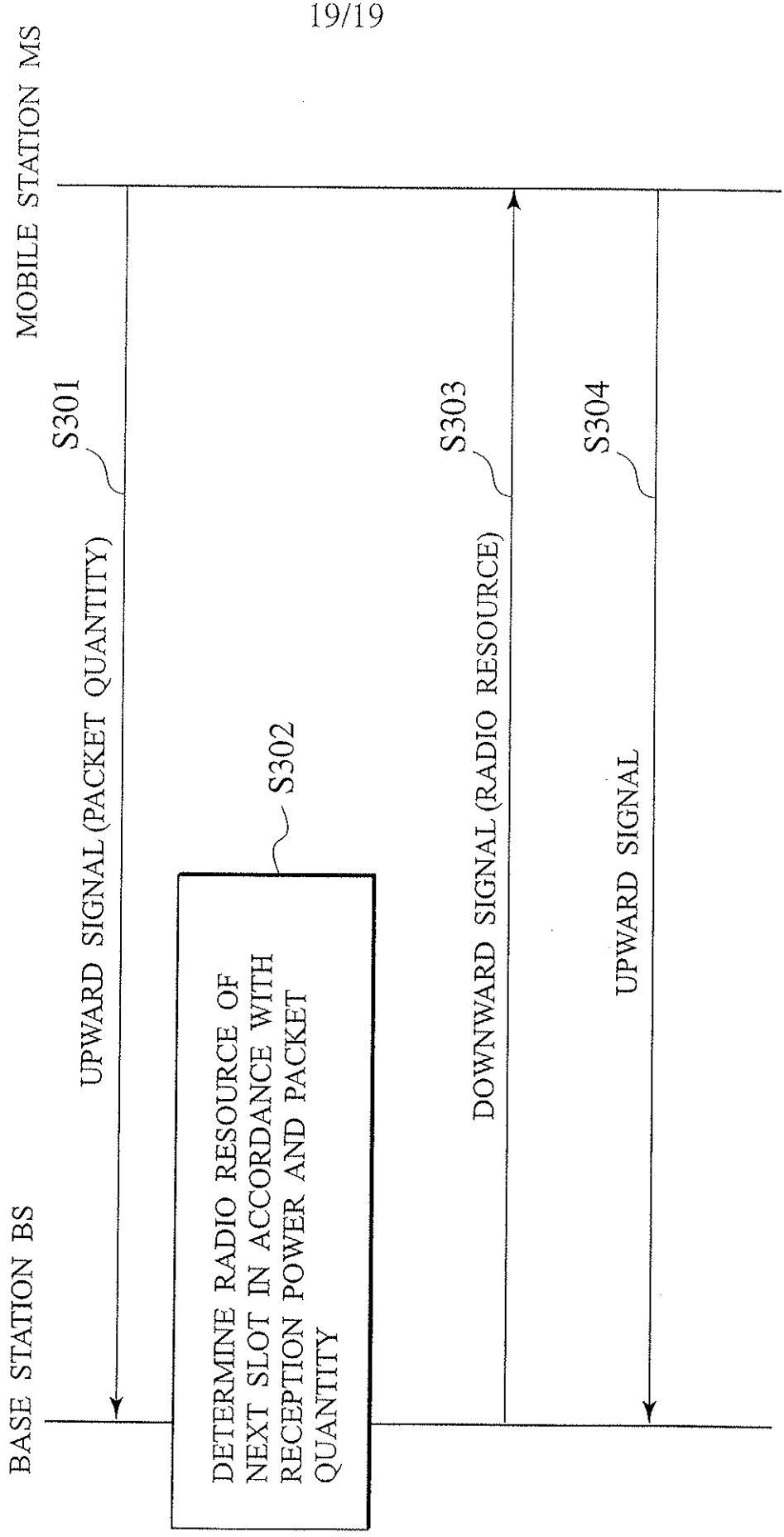

TO BASE STATION
UPWARD SIGNAL
DOWNWARD SIGNAL
210
DOWNWARD INTERFERENCE LEVEL STORAGE CIRCUIT
201
DEMODULATION CIRCUIT
202
DECODING CIRCUIT
203
SIGNAL SEPARATION CIRCUIT
DOWNWARD INFORMATION
200
CIRCULATOR
215
PACKET QUANTITY NOTIFICATION CIRCUIT
213
TRANSMISSION BUFFER
RADIO RESOURCE
UPWARD INFORMATION
209
RESOURCE ALLOCATION CIRCUIT
205
MODULATION CIRCUIT
204
CODING CIRCUIT
212
SIGNAL MULTIPLEXING CIRCUIT
PACKET TRANSMISSION CIRCUIT
214
MOBILE STATION MS

FIG. 19


MOBILE STATION MS
BASE STATION BS
S301
UPWARD SIGNAL (PACKET QUANTITY)
S302
DETERMINE RADIO RESOURCE OF NEXT SLOT IN ACCORDANCE WITH RECEPTION POWER AND PACKET QUANTITY
S303
DOWNWARD SIGNAL (RADIO RESOURCE)
S304
UPWARD SIGNAL