

**Technical Requirement for
Telemeter, Tele-control, Data Transmission of Specified Low Power Radio Equipment**

Technical Requirement	400 MHz Band		1200 MHz Band		Test Request
	Narrow Band	Wide Band	Narrow Band	Wide Band	
Communication Method:	See Appendix I		See Appendix II		
Modulation Type & Frequency Channel:	See Appendix I		See Appendix II		
Modulation Method:	Any Method				
Max. RF Output Power:	See Appendix I		See Appendix II		X
RF Output Power Tolerance:	+20%, -50%				X
Frequency Tolerance:	4 ppm		3 ppm	4 ppm	X
Oscillating Method:	X'tal or PLL Synthesizer				
Adjacent Channel Leakage Power:	40 dB (12.5 kHz +/- 4.25 kHz)	40 dB (25 kHz +/- 8 kHz)	40 dB (25 kHz +/- 8 kHz)	40 dB (50 kHz +/- 16 kHz)	X
Occupied Band Width:	8.5 kHz	16 kHz	16 kHz	32 kHz	X
Spurious Emission Strength:	2.5 micro Watts				X
Emission Wave Strength when Receiving:	4 nW				X
Function of Interference Prevention:	"Automatically Transmit & Receive ID code", or "Freq. CH./ RF Transmission off by user"				
ID code Length:	In case of PSTN connection: 48 bits				X
Function of Carrier Sensing:	Below 7 micro Volts		Below 4.47 micro Volts		X
Restriction Function of Transmission Time:	See Appendix I		See Appendix II		X
Transmission Antenna Gain:	Below 2.14dBi, or E.R.P.: 12.14 dBm (2.14 dBm: case for Max. RF Power is 1 mW)				X
Transmission Antenna Construction:	With enclosure				
Module Approval:	No				



TECHNICAL & CERTIFICATION INFORMATION

Appendix I. Frequency Band & RF Output Power for 400 MHz Band Telemeter, Tele-control, and Data Transmission Radio equipment

Modulation Type	Communication Method	Frequency Band (MHz)	Max. RF Output Power	CH #, Freq. CH, & Transmission Time
F1D, F1F, F2D, F2F, F7D, F7F, G1D, G1F, G2D, G2F, G7D, G7F, D1D, D1F, D2D, D2F, D7D, or D7F	One-way, Simplex, or Broadcast	426.0250 – 426.1375 (Narrow Band)	1 mW	See Table 1-1
		426.0375 – 426.1125 (Wide Band)		See Table 1-2
		429.1750 – 429.2375 (Narrow Band)	10 mW	See Table 1-3
		429.2500 – 429.7375 (Narrow Band)		
	429.8125 – 429.9250 (Narrow Band)	See Table 1-4		
	449.7125 – 449.8250 (Narrow Band)			
	449.8375 – 449.8875 (Narrow Band)			
	469.4375 – 469.4875 (Narrow Band)			
One-way, Simplex, Broadcast, Half-duplex, or Duplex				

Appendix II. Frequency Channel Separation for 1200 MHz Band Telemeter, Tele-control, and Data Transmission Radio equipment

Modulation Type	Communication Method	Frequency Band (MHz)	Max. RF Output Power	CH #, Freq. CH, & Transmission Time
F1D, F1F, F2D, F2F, F7D, F7F, G1D, G1F, G2D, G2F, G7D, G7F, D1D, D1F, D2D, D2F, D7D, or D7F	One-way, Simplex, Broadcast, Half-duplex, or Duplex	1216.000 – 1217.000 (Wide Band)	10 mW	See Table 2-1
		1252.000 – 1253.000 (Wide Band)		
		1216.0125 – 1216.9875 (Narrow Band)		See Table 2-2 & 2-3
		1252.0125 – 1252.9875 (Narrow Band)		

Table 1-1. Cannel #, Frequency Channel, and Requirement of Restriction Function of Transmission Time

For Narrow Band Model – Narrower than 8.5 kHz Occupied Band Width

CH #	Frequency (MHz)	Restriction Function of Transmission Time
1	426.0250	Transmission ON/OFF: within 40 sec./over 2 sec. for Telemeter & Data Transmission Transmission ON/OFF: within 5 sec./over 2 sec. for Tele-control & Data Transmission
2	426.0375	
3	426.0500	
4	426.0625	
5	426.0750	
6	426.0875	
7	426.1000	
8	426.1125	
9	426.1250	
10	426.1375	

Table 1-2. Cannel #, Frequency Channel, and Requirement of Restriction Function of Transmission Time

For Wide Band Model – 8.5 kHz to 16 kHz Occupied Band Width

CH #	Frequency (MHz)	Restriction Function of Transmission Time
1	426.0375	Transmission ON/OFF: within 40 sec./over 2 sec. for Telemeter & Data Transmission Transmission ON/OFF: within 5 sec./over 2 sec. for Tele-control & Data Transmission
2	426.0625	
3	426.0875	
4	426.1125	

Table 1-3. Cannel #, Frequency Channel, and Requirement of Restriction Function of Transmission Time

For Narrow Band Model – Narrower than 8.5 kHz Occupied Band Width

CH #	Frequency (MHz)	CH #	Frequency (MHz)	Restriction Function of Transmission Time
1	429.1750	4	429.2125	Transmission ON/OFF: within 40 sec./over 2 sec.
2	429.1875	5	429.2250	
3	429.2000	6	429.2375	
7	429.2500	27	429.5000	No requirement - Possible Continuous Transmission
8	429.2625	28	429.5125	
9	429.2750	29	429.5250	
10	429.2875	30	429.5375	
11	429.3000	31	429.5500	
12	429.3125	32	429.5625	
13	429.3250	33	429.5750	
14	429.3375	34	429.5875	
15	429.3500	35	429.6000	
16	429.3625	36	429.6125	
17	429.3750	37	429.6250	
18	429.3875	38	429.6375	
19	429.4000	39	429.6500	
20	429.4125	40	429.6625	
21	429.4250	41	429.6750	
22	429.4375	42	429.6875	
23	429.4500	43	429.7000	
24	429.4625	44	429.7125	
25	429.4750	45	429.7250	
26	429.4875	46	429.7375	

Table 1-4. Cannel #, Frequency Channel, and Requirement of Restriction Function of Transmission Time

For Narrow Band Model – Narrower than 8.5 kHz Occupied Band Width

CH #	Frequency (MHz)			Restriction Function of Transmission Time
1	429.8125	449.7125		Transmission ON/OFF: within 40 sec./over 2 sec.
2	429.8250	449.7250		
3	429.8375	449.7375		
4	429.8500	449.7500		
5	429.8625	449.7625		
6	429.8750	449.7750		
7	429.8875	449.7825		
8	429.9000	449.8000		
9	429.9125	449.8125		
10	429.9250	449.8250		CH. 10 for Frequency Control use only Transmission ON/OFF: within 0.2 sec./over 2 sec.
11		449.8375	469.4375	Transmission ON/OFF: within 40 sec./over 2 sec.
12		449.8500	469.4500	
13		449.8625	469.4625	
14		449.8750	469.4750	
15		449.8875	469.4875	CH. 15 for Frequency Control use only Transmission ON/OFF: within 0.2 sec./over 2 sec.

* For a Data Channel for Half-duplex & Duplex method must be used same channel number by both TX and RX units.

Table 2-1. Cannel #, Frequency Channel, and Requirement of Restriction Function of Transmission Time

For Narrow Band Model – 16 kHz to 32 kHz Occupied Band Width

CH #	Frequency (MHz)		Restriction Function of Transmission Time
1	1216.0000	1252.0000	CH. 1 for Frequency Control use only Transmission ON/OFF: within 0.2 sec./over 2 sec.
2	1216.0500	1252.0500	No requirement - Possible Continuous Transmission
3	1216.1000	1252.1000	
4	1216.1500	1252.1500	
5	1216.2000	1252.2000	
6	1216.2500	1252.2500	
7	1216.3000	1252.3000	
8	1216.3500	1252.3500	
9	1216.4000	1252.4000	
10	1216.4500	1252.4500	
11	1216.5000	1252.5000	
12	1216.5500	1252.5500	
13	1216.6000	1252.6000	
14	1216.6500	1252.6500	
15	1216.7000	1252.7000	
16	1216.7500	1252.7500	
17	1216.8000	1252.8000	
18	1216.8500	1252.8500	
19	1216.9000	1252.9000	
20	1216.9500	1252.9500	
21	1217.0000	1253.0000	

* For a Data Channel for Half-duplex & Duplex method must be used same channel number by both TX and RX units.

Table 2-2. Cannel #, Frequency Channel, and Requirement of Restriction Function of Transmission Time

For Narrow Band Model – Narrower than 16 kHz Occupied Band Width

CH #	Frequency (MHz)		Restriction Function of Transmission Time
1	1216.0125	1252.0125	CH. 1 for Frequency Control use only Transmission ON/OFF: within 0.2 sec./over 2 sec.
2	1216.0375	1252.0375	No requirement - Possible Continuous Transmission
3	1216.0625	1252.0625	
4	1216.0875	1252.0875	
5	1216.1125	1252.1125	
6	1216.1375	1252.1375	
7	1216.1625	1252.1625	
8	1216.1875	1252.1875	
9	1216.2125	1252.2125	
10	1216.2375	1252.2375	
11	1216.2625	1252.2625	
12	1216.2875	1252.2875	
13	1216.3125	1252.3125	
14	1216.3375	1252.3375	
15	1216.3625	1252.3625	
16	1216.3875	1252.3875	
17	1216.4125	1252.4125	
18	1216.4375	1252.4375	
19	1216.4625	1252.4625	
20	1216.4875	1252.4875	

* For a Data Channel for Half-duplex & Duplex method must be used same channel number by both TX and RX units.

Table 2-3. Cannel #, Frequency Channel, and Requirement of Restriction Function of Transmission Time

For Narrow Band Model – Narrower than 16 kHz Occupied Band Width

CH #	Frequency (MHz)		Restriction Function of Transmission Time
21	1216.5125	1252.5125	CH. 21 for Frequency Control use only Transmission ON/OFF: within 0.2 sec./over 2 sec.
22	1216.5375	1252.5375	Transmission ON/OFF: within 40 sec./over 2 sec.
23	1216.5625	1252.5625	
24	1216.5875	1252.5875	
25	1216.6125	1252.6125	
26	1216.6375	1252.6375	
27	1216.6625	1252.6625	
28	1216.6875	1252.6875	
29	1216.7125	1252.7125	
30	1216.7375	1252.7375	
31	1216.7625	1252.7625	
32	1216.7875	1252.7875	
33	1216.8125	1252.8125	
34	1216.8375	1252.8375	
35	1216.8625	1252.8625	
36	1216.8875	1252.8875	
37	1216.9125	1252.9125	
38	1216.9375	1252.9375	
39	1216.9625	1252.9625	
40	1216.9875	1252.9875	

* For a Data Channel for Half-duplex & Duplex method must be used same channel number by both TX and RX units.



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