

Test result and instruments about Type certificate

920MHz Telemeter (Specified low-power radio stations)

1. General

Model name	Dasloop G2S L		Date	6 April 2022	
Serial number	A1		Place	SGS Hong Kong Limited	
Class of emissions, Assigned frequency and Antenna power	F1D 920.6 - 928.0 MHz (200 kHz Separation 38 ch) (920.6, 920.8, 921.0, 921.2, 921.4, 921.6, 921.8, 922.0, 922.2, 922.4, 922.6, 922.8, 923.0, 923.2, 923.4, 923.6, 923.8, 924.0, 924.2, 924.4, 924.6, 924.8, 925.0, 925.2, 925.4, 925.6, 925.8, 926.0, 926.2, 926.4, 926.6, 926.8, 927.0, 927.2, 927.4, 927.6, 927.8, 928.0 MHz 38ch) 0.006W		Remarks		

2. Measuring Instruments

Equipment type	Model number	Serial number	Manufacturer	Calibrated Date	Calibration Authority	Remarks
FSV40 SIGNAL ANALYZER 40GH	FSV40	101418	ROHDE & SCHWARZ	8/17/2021	CEPREI (c)	

3. Test Result

Condition	Test Items		Unit	Normal Voltage - 10% (3.96 V)			Normal Voltage (3.60 V)			Normal Voltage + 10% (3.24 V)			Judgment	Limit	Remarks			
Normal (°C, %)	Frequency		MHz	920.6	924.2	928.0	920.6	924.2	928.0	920.6	924.2	928.0		20ppm	f±100kHz	**7		
			ppm	-0.978	-0.974	-0.970	-0.978	-0.974	-0.970	-0.945	-0.974	-0.970						
			Upper	920.662	924.262	928.062	920.662	924.262	928.062	920.662	924.262	928.062						
			Lower	920.536	924.136	927.936	920.536	924.136	927.936	920.536	924.136	927.936						
	Occupied Bandwidth		kHz	125.615	125.615	125.615	125.615	125.615	125.615	125.615	125.615	125.615		**1				
	Spurious	30MHz-710MHz	dBm	-64.27	-64.99	-65.20	-64.92	-65.56	-65.07	-64.99	-64.73	-64.77				-36dBm/100kHz		
		710MHz-900MHz	MHz	690.280	617.293	622.733	644.947	546.573	680.307	690.280	631.800	696.173				-55dBm/1MHz		
			dBm	-55.48	-55.60	-55.78	-55.99	-56.02	-55.26	-55.96	-55.50	-56.48						
		900MHz-915MHz	MHz	866.513	845.613	811.888	770.088	892.163	854.638	872.213	817.588	871.263				-55dBm/100kHz		
			dBm	-62.54	-64.26	-62.97	-61.92	-57.58	-65.24	-57.00	-64.48	-64.22						
		915MHz-930MHz **2	MHz	914.308	914.406	903.239	914.631	904.416	914.310	903.083	914.419	913.722				-36dBm/100kHz		
			dBm	-40.50	-40.89	-37.75	-40.81	-40.62	-38.86	-39.69	-36.08	-40.50						
		930MHz-1000MHz	MHz	920.250	923.895	924.492	920.299	923.873	927.684	920.278	921.201	928.325				-55dBm/100kHz		
			dBm	-65.10	-63.59	-65.34	-65.89	-63.28	-56.05	-65.52	-63.83	-56.10						
		1000MHz-1215MHz	MHz	952.633	931.167	930.700	952.633	930.233	930.230	932.100	930.700	930.233				-45dBm/1MHz		
			dBm	-56.20	-56.89	-56.16	-56.82	-56.01	-56.48	-56.62	-56.14	-55.06						
		1215MHz-5GHz	MHz	1067.610	1044.190	1102.010	1110.610	1089.580	1063.310	1086.720	1062.830	1085.280				-30dBm/1MHz		
			dBm	-49.47	-50.12	-49.94	-42.78	-49.48	-49.36	-49.08	-49.80	-50.23						
	Antenna Power		MHz	1841.650	1848.750	1856.320	2458.610	1848.750	1856.320	1841.650	1848.750	1856.320					**3	+20 ~ -80%
			W	0.005914	0.005934	0.005922	0.005967	0.005901	0.005915	0.005875	0.005907	0.005877						
			%	-1.432	-1.094	-1.292	-0.557	-1.651	-1.424	-2.075	-1.548	-2.047						
	Adjacent channel leakage power	Upper	dBm	-54.9	-55.0	-50.2	-55.5	-56.5	-50.3	-56.7	-54.0	-49.9				**4		
		Lower	dBm	-53.1	-53.3	-50.2	-53.8	-54.5	-50.2	-54.5	-54.8	-51.5						
	Secondary Radiated Emissions	30MHz-710MHz	dBm	-69.68	-69.57	-69.00	-69.70	-68.72	-69.52	-69.92	-69.59	-69.05		-54dBm/100kHz				
		MHz	622.280	338.400	707.507	317.187	587.827	505.320	444.573	277.293	292.253							
		710MHz-900MHz	dBm	-60.03	-60.95	-60.59	-60.10	-60.81	-60.35	-60.20	-60.19	-60.65		-55dBm/1MHz				
		MHz	761.063	787.188	854.163	768.188	787.188	896.438	769.613	856.538	752.513							
		900MHz-915MHz	dBm	-68.73	-69.38	-69.70	-69.08	-69.59	-68.32	-69.21	-69.58	-69.46		-55dBm/100kHz				
		MHz	905.952	904.048	908.427	901.868	912.562	904.354	902.523	911.279	900.149							
		915MHz-930MHz*	dBm	-69.14	-69.77	-69.55	-69.40	-69.54	-69.77	-69.62	-68.62	-68.92		-54dBm/100kHz				
		MHz	929.950	917.348	916.629	928.772	929.255	920.529	920.256	915.949	916.175							
		930MHz-1000MHz	dBm	-69.31	-69.48	-69.23	-69.62	-69.05	-68.82	-69.00	-69.33	-69.31		-55dBm/100kHz				
		MHz	948.900	935.367	945.633	982.033	983.900	930.700	995.100	961.033	978.300							
		1000MHz-5GHz	dBm	-57.17	-56.49	-56.92	-57.16	-57.36	-56.42	-57.15	-56.92	-56.67		-47dBm/1MHz				
	MHz	4142.220	4613.330	2444.440	3768.890	4906.670	4862.220	4426.670	4088.890	4880.000								
	Transmission time	Sending duration	ms	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6	32.6		**5				
		Pause duration	ms	767.4	767.4	767.4	767.4	767.4	767.4	767.4	767.4	767.4						
Carrier sense **6			Good	Good	Good	Good	Good	Good	Good	Good	Good		-80dBm					

Note

Voltage fluctuation test				If results are Within 1%, Omit Voltage fluctuation test.
	Input	Radio Input		
	[V]	[V]	[%]	
+10%				
0%				
-10%				

**1
Occupied Bandwidth
It shall be (200 x n) kHz or less. However, in the case that the center frequency is from 928.15 MHz to 929.65 MHz, it shall be (100 x n) kHz or less. (n is a number of unit radio channels constituting the radio channel and is an integer from 1 to 5.)

**2
Spurious
915MHz-930MHz
(1) Unit radio channel is 200kHz:
except $|f-f_c| \leq (200+100 \times n)$ kHz,
(2) Unit radio channel is 100kHz:
except $|f-f_c| \leq (100+50 \times n)$ kHz

**3
Antenna Power
Please see ARIB STD-T108, page 3-9.
http://www.arib.or.jp/english/html/overview/doc/5-STD-T108v1_0-E2.pdf

**4
Adjacent channel leakage power
(1) 920.5~928.1MHz (Antenna power : 1mW~20mW)
-15dBm or less
(2) 915.9~929.7MHz (Antenna power : 1mW or less)
-26dBm or less

**5
Transmission time
(1) 915.9~928.1MHz
Without carrier sensing
Total transmitting time : 3.6s/hour
Sending duration : 0.1s or less
Pause duration : 0.1s or more
No need of Pause duration in the case of re-transmitting within 0.1s

(2) 928.1~929.7MHz
Sending duration : 50ms or less
Pause duration : 50ms or more
No need of Pause duration in the case of re-transmitting within 50ms

(3) 920.5~923.5MHz
Carrier sense time : 5ms or more
Sending duration : 4s or less
Pause duration : 50ms or more
No need of Pause duration in the case of re-transmitting within 4s(need carrier sense of 128us or more)

(4) 920.5~928.1MHz
Carrier sense time : 128us or more
Total transmitting time : 360s/hour
Sending duration : 0.4s or less
Pause duration : 2ms or more
No need of Pause duration in the case that transmitting time is 6ms or less

**6
Carrier sense
(1) Radio equipment shall check if the interference exists by the carrier sense procedure before its new emission.
(2) Carrier sense time shall be 128us or more.
(3) Carrier sense level, amount of received power at all of unit radio channels included in the radio channel to emit, shall be -80dBm at the antenna input. When the carrier sense level is more than -80dBm, radio equipment shall not emit any radio wave.
(4) Carrier sense is not necessary if the antenna power is 1mW or less and the conditions of 3.4 (1) c) are satisfied

**7
Frequency
In the case of 1 unit channel, it can be as assigned frequency band instead of Frequency error.
Assigned frequency band : channel frequency +/- 100kHz (916-928MHz)
+/- 50kHz (928.15-929.65MHz)