APPENDIX A – TEST DATA OF CONDUCTED EMISSION

LTE Band 4

1 RF Power Output

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1710.7	19957	1.4	1	0	22.67
				1	5	22.55
				3	2	21.61
				6	0	21.59
	1732.5	20175		1	0	22.66
				1	5	22.65
				3	2	21.70
				6	0	21.63
	1754.3	20393		1	0	22.86
				1	5	22.78
				3	2	21.88
				6	0	21.75
16QAM	1710.7	19957	1.4	1	0	21.75
				1	5	21.53
				3	2	20.65
				6	0	20.59
	1732.5	20175		1	0	21.72
				1	5	21.63
				3	2	20.70
				6	0	20.65
	1754.3	20393		1	0	21.94
				1	5	21.79
				3	2	20.95
				6	0	20.80

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1711.5	19965	3	1	0	22.69
				1	14	22.63
				8	4	21.63
				15	0	21.61
	1732.5	20175		1	0	22.77
				1	14	22.70
				8	4	21.66
				15	0	21.63
	1753.5	20385		1	0	22.80
				1	14	22.88
				8	4	21.90
				15	0	21.85
16QAM	1711.5	19965	3	1	0	21.68
				1	14	21.52
				8	4	20.60
				15	0	20.61
	1732.5	20175		1	0	21.75
				1	14	21.70
				8	4	20.74
				15	0	20.69
	1753.5	20385		1	0	21.95
				1	14	21.78
				8	4	20.98
				15	0	20.89

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1712.5	19975	5	1	0	22.81
				1	24	22.59
				12	6	21.66
				25	0	21.59
	1732.5	20175		1	0	22.73
				1	24	22.77
				12	6	21.65
				25	0	21.63
	1752.5	20375		1	0	22.94
				1	24	22.88
				12	6	21.97
				25	0	21.81
16QAM	1712.5	19975	5	1	0	21.75
				1	24	21.67
				12	6	20.67
				25	0	20.57
	1732.5	20175		1	0	21.81
				1	24	21.75
				12	6	20.67
				25	0	20.63
	1752.5	20375		1	0	22.00
				1	24	21.91
				12	6	21.00
				25	0	20.92

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1715	20000	10	1	0	22.87
				1	49	22.70
				24	12	21.79
				50	0	21.66
	1732.5	20175		1	0	22.81
				1	49	22.74
				24	12	21.75
				50	0	21.69
	1750	20350		1	0	22.96
				1	49	22.99
				24	12	22.04
				50	0	21.90
16QAM	1715	20000	10	1	0	21.88
				1	49	21.67
				24	12	20.79
				50	0	20.72
	1732.5	20175		1	0	21.83
				1	49	21.75
				24	12	20.79
				50	0	20.80
	1750	20350		1	0	22.05
				1	49	21.90
				24	12	21.08
				50	0	20.93

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1717.5	20025	15	1	0	22.90
				1	74	22.76
				40	18	21.73
				75	0	21.74
	1732.5	20175		1	0	22.83
				1	74	22.79
				40	18	21.83
				75	0	21.74
	1747.5	20325		1	0	23.06
				1	74	22.93
				40	18	22.07
				75	0	22.00
16QAM	1717.5	20025	15	1	0	21.93
				1	74	21.76
				40	18	20.81
				75	0	20.77
	1732.5	20175		1	0	21.88
				1	74	21.87
				40	18	20.85
				75	0	20.80
	1747.5	20325		1	0	22.08
				1	74	22.01
				40	18	21.14
				75	0	21.00

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1720	20050	20	1	0	22.95
				1	99	22.83
				50	25	21.87
				100	0	21.83
	1732.5	20175		1	0	22.97
				1	99	22.91
				50	25	21.92
				100	0	21.87
	1745	20300		1	0	23.11
				1	99	23.08
				50	25	22.18
				100	0	22.06
16QAM	1720	20050	20	1	0	21.99
				1	99	21.82
				50	25	20.91
				100	0	20.83
	1732.5	20175		1	0	21.98
				1	99	21.92
				50	25	20.94
				100	0	20.90
	1745	20300		1	0	22.16
				1	99	22.06
				50	25	21.20
				100	0	21.11

Test results conducted power measurement (Reduced Power)

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1710.7	19957	1.4	1	0	14.67
				1	5	14.55
				3	2	13.61
				6	0	13.59
	1732.5	20175		1	0	14.66
				1	5	14.65
				3	2	13.70
				6	0	13.63
	1754.3	20393		1	0	14.86
				1	5	14.78
				3	2	13.88
				6	0	13.75
16QAM	1710.7	19957	1.4	1	0	13.75
				1	5	13.53
				3	2	12.65
				6	0	12.59
	1732.5	20175		1	0	13.72
				1	5	13.63
				3	2	12.70
				6	0	12.65
	1754.3	20393		1	0	13.94
				1	5	13.79
				3	2	12.95
				6	0	12.80

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1711.5	19965	3	1	0	14.69
				1	14	14.63
				8	4	13.63
				15	0	13.61
	1732.5	20175		1	0	14.77
				1	14	14.70
				8	4	13.66
				15	0	13.63
	1753.5	20385		1	0	14.80
				1	14	14.88
				8	4	13.90
				15	0	13.85
16QAM	1711.5	19965	3	1	0	13.68
				1	14	13.52
				8	4	12.60
				15	0	12.61
	1732.5	20175		1	0	13.75
				1	14	13.70
				8	4	12.74
				15	0	12.69
	1753.5	20385		1	0	13.95
				1	14	13.78
				8	4	12.98
				15	0	12.89

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1712.5	19975	5	1	0	14.81
				1	24	14.59
				12	6	13.66
				25	0	13.59
	1732.5	20175		1	0	14.73
				1	24	14.77
				12	6	13.65
				25	0	13.63
	1752.5	20375		1	0	14.94
				1	24	14.88
				12	6	13.97
				25	0	13.81
16QAM	1712.5	19975	5	1	0	13.75
				1	24	13.67
				12	6	12.67
				25	0	12.57
	1732.5	20175		1	0	13.81
				1	24	13.75
				12	6	12.67
				25	0	12.63
	1752.5	20375		1	0	14.00
				1	24	13.91
				12	6	13.00
				25	0	12.92

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1715	20000	10	1	0	14.87
				1	49	14.70
				24	12	13.79
				50	0	13.66
	1732.5	20175		1	0	14.81
				1	49	14.74
				24	12	13.75
				50	0	13.69
	1750	20350		1	0	14.96
				1	49	14.99
				24	12	14.04
				50	0	13.90
16QAM	1715	20000	10	1	0	13.88
				1	49	13.67
				24	12	12.79
				50	0	12.72
	1732.5	20175		1	0	13.83
				1	49	13.75
				24	12	12.79
				50	0	12.80
	1750	20350		1	0	14.05
				1	49	13.90
				24	12	13.08
				50	0	12.93

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1717.5	20025	15	1	0	14.90
				1	74	14.76
				40	18	13.73
				75	0	13.74
	1732.5	20175		1	0	14.83
				1	74	14.79
				40	18	13.83
				75	0	13.74
	1747.5	20325		1	0	15.06
				1	74	14.93
				40	18	14.07
				75	0	14.00
16QAM	1717.5	20025	15	1	0	13.93
				1	74	13.76
				40	18	12.81
				75	0	12.77
	1732.5	20175		1	0	13.88
				1	74	13.87
				40	18	12.85
				75	0	12.80
	1747.5	20325		1	0	14.08
				1	74	14.01
				40	18	13.14
				75	0	13.00

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1720	20050	20	1	0	14.95
				1	99	14.83
				50	25	13.87
				100	0	13.83
	1732.5	20175		1	0	14.97
				1	99	14.91
				50	25	13.92
				100	0	13.87
	1745	20300		1	0	15.11
				1	99	15.08
				50	25	14.18
				100	0	14.06
16QAM	1720	20050	20	1	0	13.99
				1	99	13.82
				50	25	12.91
				100	0	12.83
	1732.5	20175		1	0	13.98
				1	99	13.92
				50	25	12.94
				100	0	12.90
	1745	20300		1	0	14.16
				1	99	14.06
				50	25	13.20
				100	0	13.11

2 Occupied Bandwidth

Test result

Band	Carrier frequency (MHz)	Channel	BW (MHz)	RB Size	RB Offset	Bandwidth of 99% Power (MHz)			
						QPSK		16-QAM	
4	1710.7	19957	1.4	6	0	1.0829	Fig.1	1.0818	Fig.2
	1732.5	20175		6	0	1.0822	Fig.3	1.0842	Fig.4
	1754.3	20393		6	0	1.0831	Fig.5	1.0830	Fig.6
	1711.5	19965	3	15	0	2.6866	Fig.7	2.6929	Fig.8
	1732.5	20175		15	0	2.6922	Fig.9	2.6880	Fig.10
	1753.5	20385		15	0	2.6910	Fig.11	2.6930	Fig.12
	1712.5	19975	5	25	0	4.4771	Fig.13	4.4778	Fig.14
	1732.5	20175		25	0	4.4770	Fig.15	4.4771	Fig.16
	1752.5	20375		25	0	4.4771	Fig.17	4.4743	Fig.18
	1715	20000	10	50	0	8.9258	Fig.19	8.9427	Fig.20
	1732.5	20175		50	0	8.9358	Fig.21	8.9483	Fig.22
	1750	20350		50	0	8.9329	Fig.23	8.9248	Fig.24
	1717.5	20025	15	75	0	13.414	Fig.25	13.430	Fig.26
	1732.5	20175		75	0	13.400	Fig.27	13.434	Fig.28
	1747.5	20325		75	0	13.414	Fig.29	13.398	Fig.30
	1720	20050	20	100	0	17.829	Fig.31	17.798	Fig.32
	1732.5	20175		100	0	17.849	Fig.33	17.831	Fig.34
	1745	20300		100	0	17.818	Fig.35	17.841	Fig.36

Band	Carrier frequency (MHz)	Channel	BW (MHz)	RB Size	RB Offset	Bandwidth of -26dB transmitter power (MHz)			
						QPSK		16-QAM	
4	1710.7	19957	1.4	6	0	1.265	Fig.1	1.266	Fig.2
	1732.5	20175		6	0	1.269	Fig.3	1.268	Fig.4
	1754.3	20393		6	0	1.261	Fig.5	1.258	Fig.6
	1711.5	19965	3	15	0	2.982	Fig.7	3.005	Fig.8
	1732.5	20175		15	0	2.980	Fig.9	2.972	Fig.10
	1753.5	20385		15	0	2.976	Fig.11	2.964	Fig.12
	1712.5	19975	5	25	0	4.933	Fig.13	4.935	Fig.14
	1732.5	20175		25	0	4.941	Fig.15	4.935	Fig.16
	1752.5	20375		25	0	4.935	Fig.17	4.974	Fig.18
	1715	20000	10	50	0	9.770	Fig.19	9.640	Fig.20
	1732.5	20175		50	0	9.724	Fig.21	9.708	Fig.22
	1750	20350		50	0	9.659	Fig.23	9.592	Fig.24
	1717.5	20025	15	75	0	14.43	Fig.25	14.53	Fig.26
	1732.5	20175		75	0	14.49	Fig.27	14.40	Fig.28
	1747.5	20325		75	0	14.46	Fig.29	14.38	Fig.30
	1720	20050	20	100	0	19.13	Fig.31	18.93	Fig.32
	1732.5	20175		100	0	19.43	Fig.33	19.16	Fig.34
	1745	20300		100	0	19.15	Fig.35	18.82	Fig.36

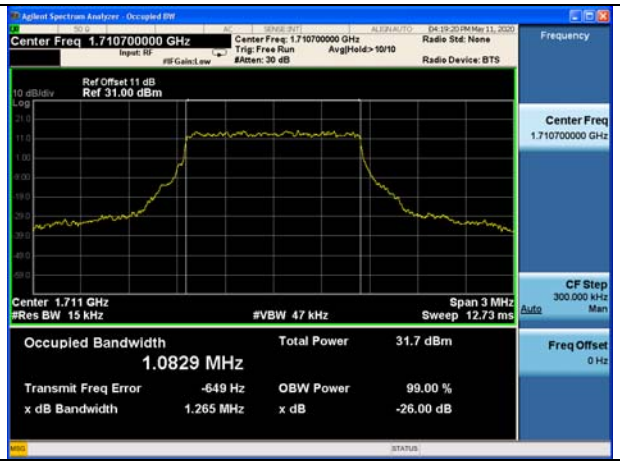

Fig.1

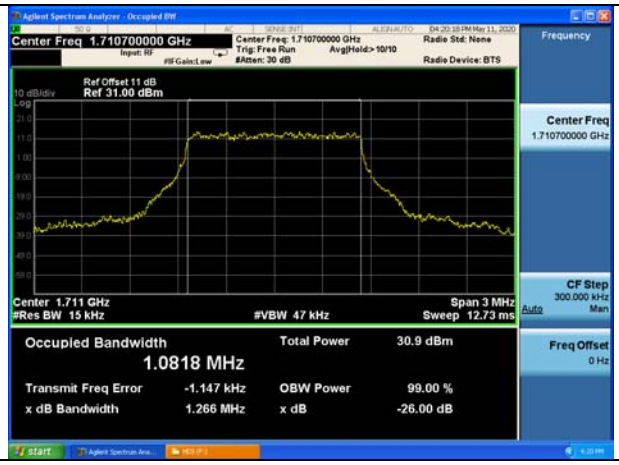

Fig.2

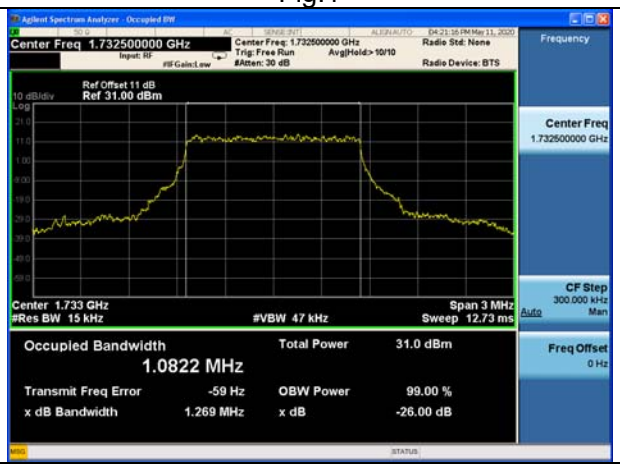

Fig.3

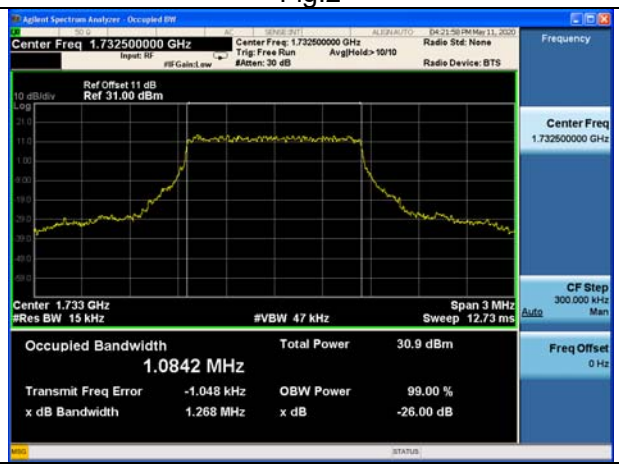

Fig.4

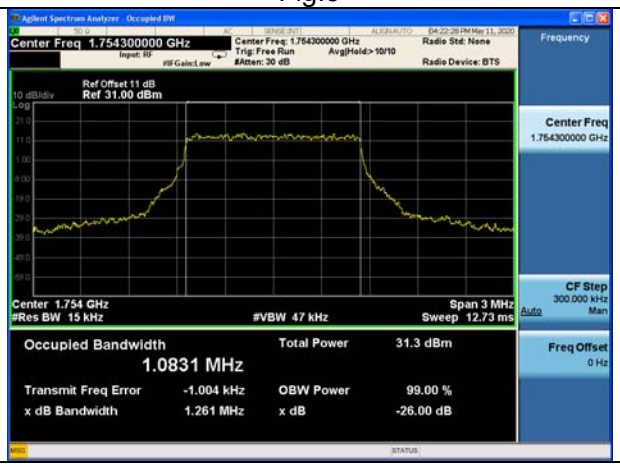

Fig.5

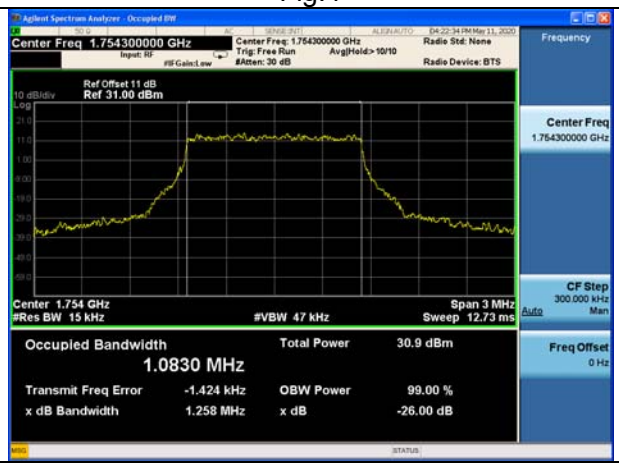

Fig.6

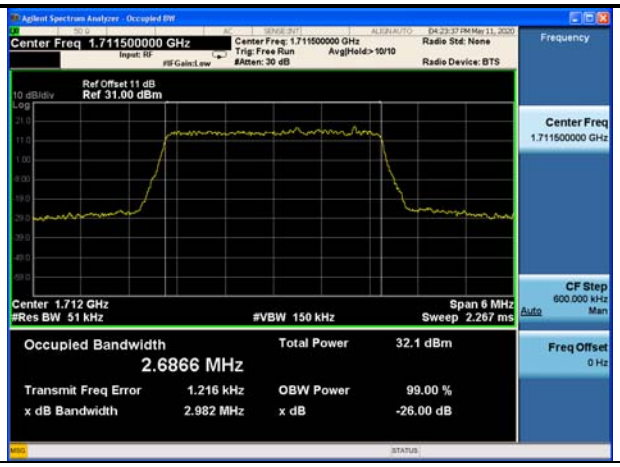

Fig.7

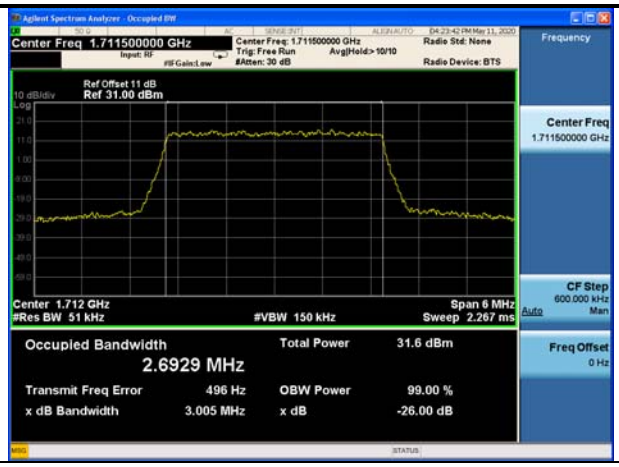

Fig.8

Fig.9

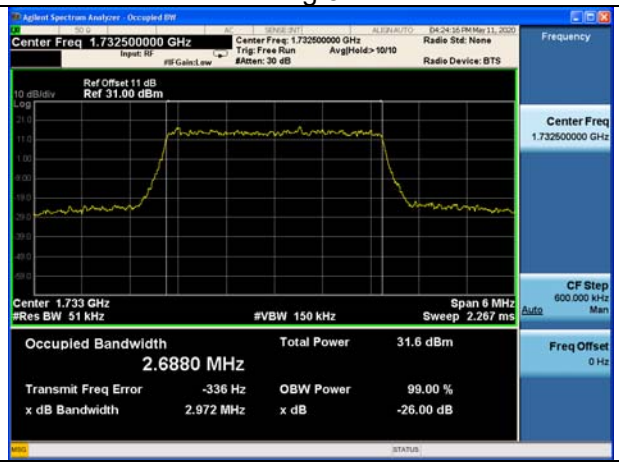

Fig.10

Fig.11

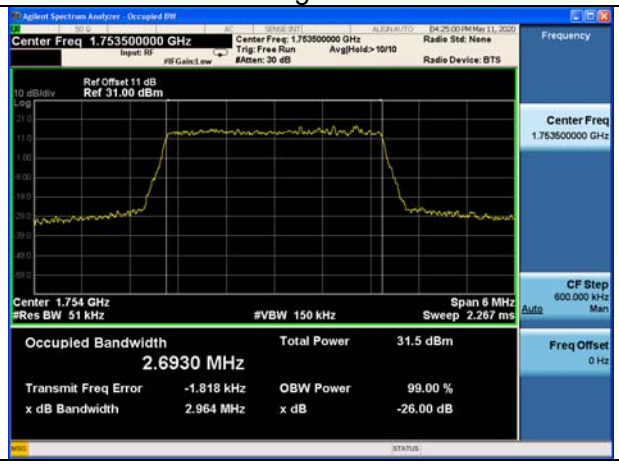

Fig.12

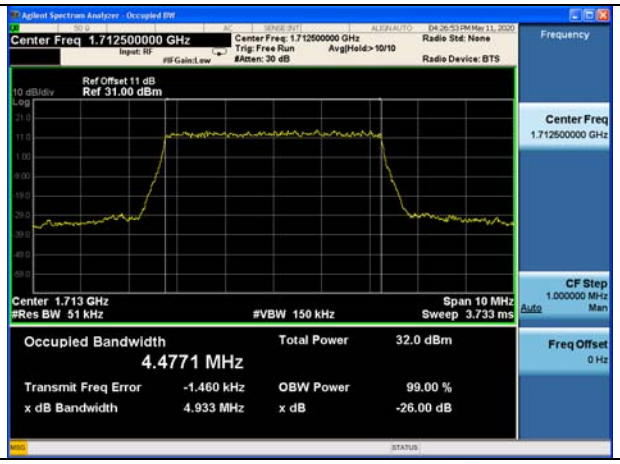

Fig.13

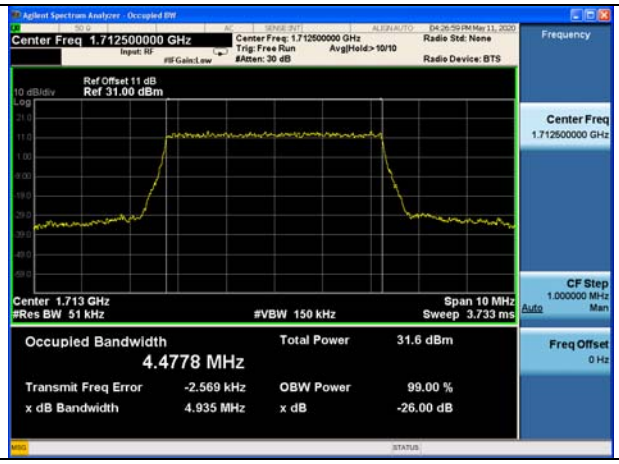

Fig.14

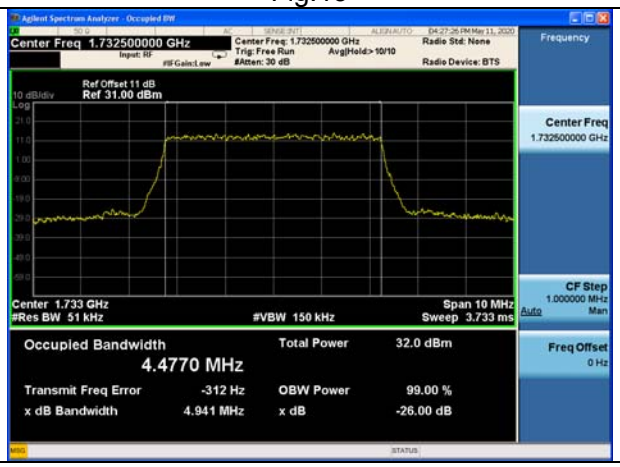

Fig.15

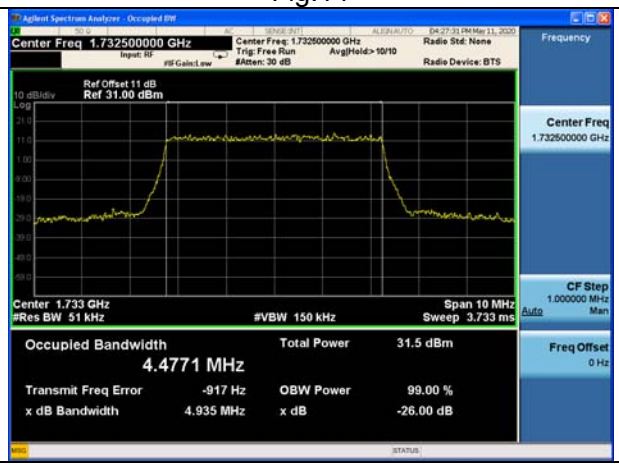

Fig.16

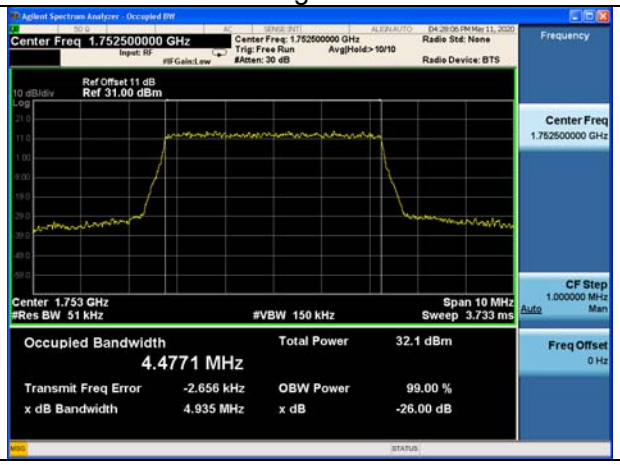

Fig.17

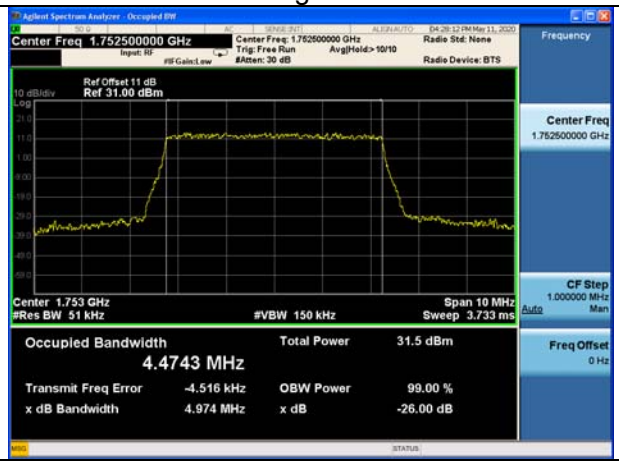

Fig.18

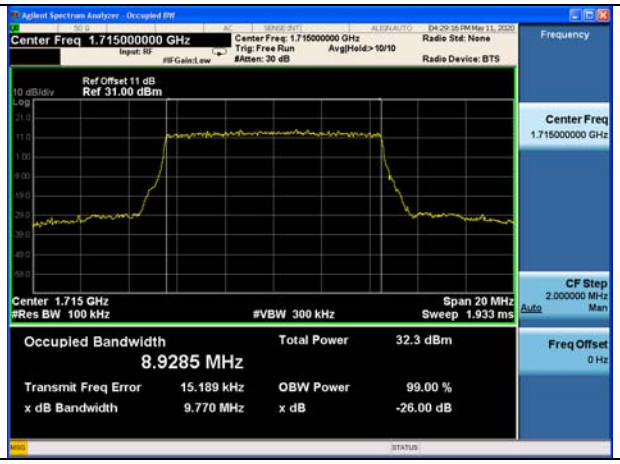

Fig.19

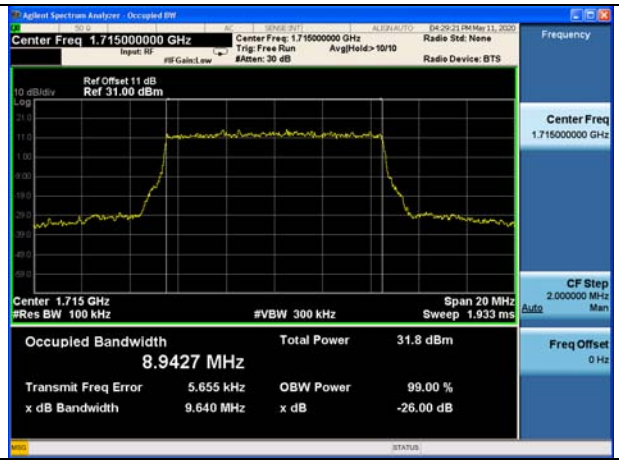

Fig.20

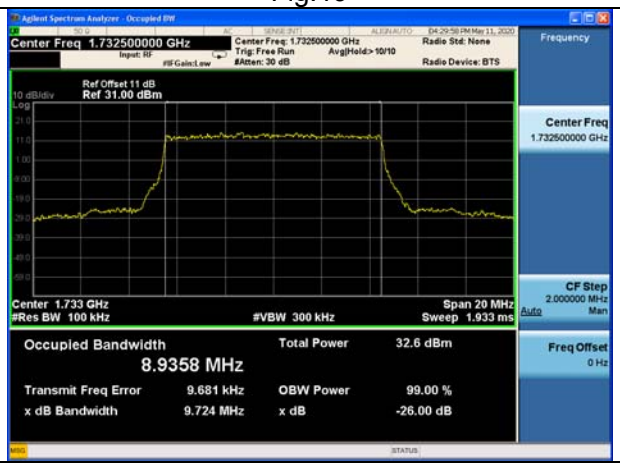

Fig.21

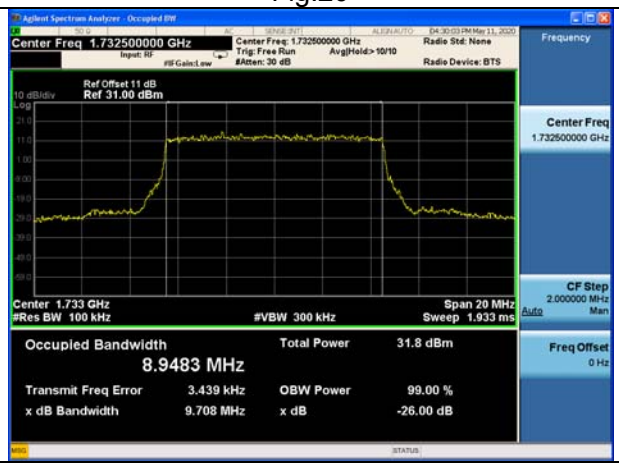

Fig.22

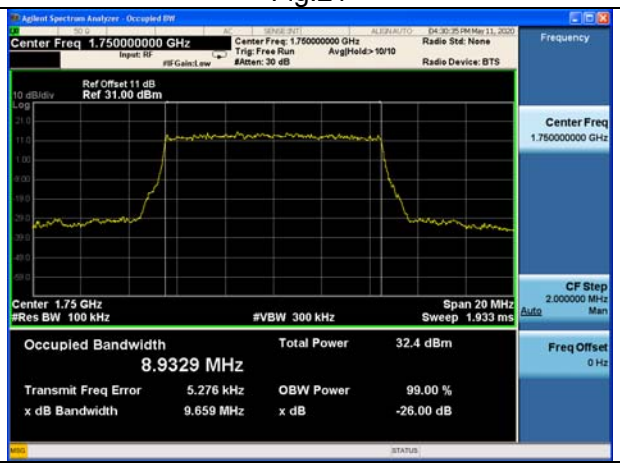

Fig.23

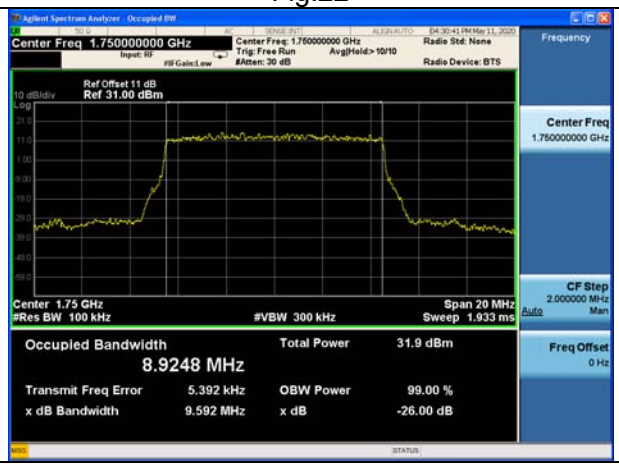

Fig.24

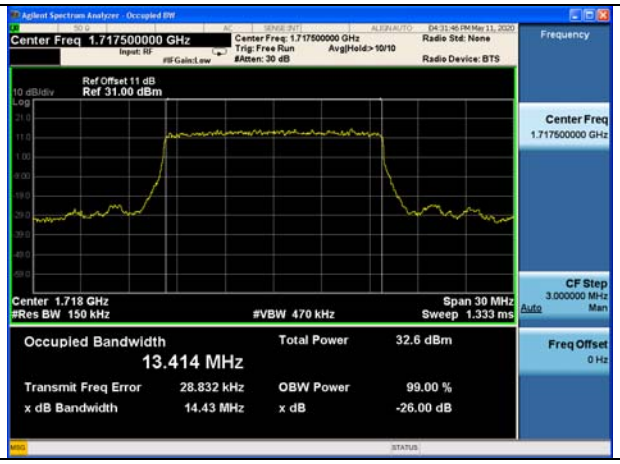

Fig.25

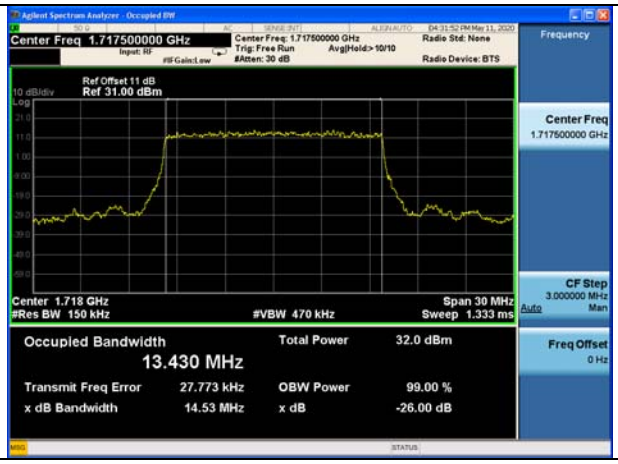

Fig.26

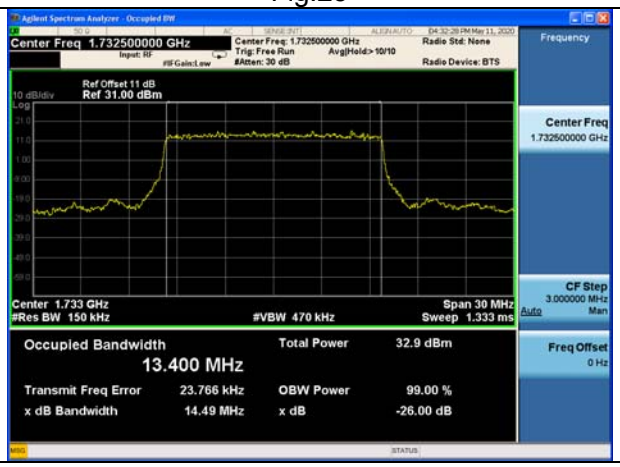

Fig.27

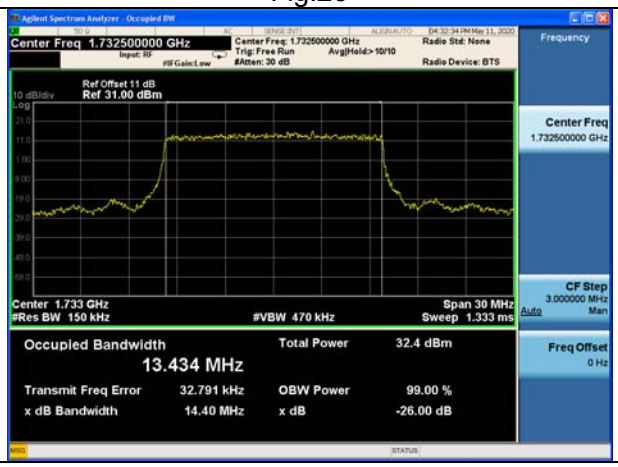

Fig.28

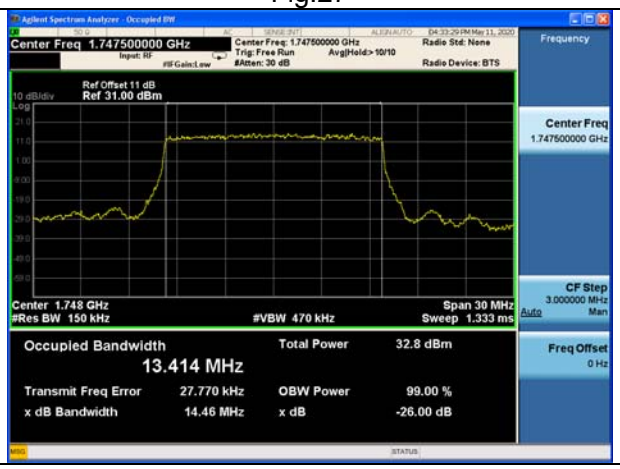

Fig.29

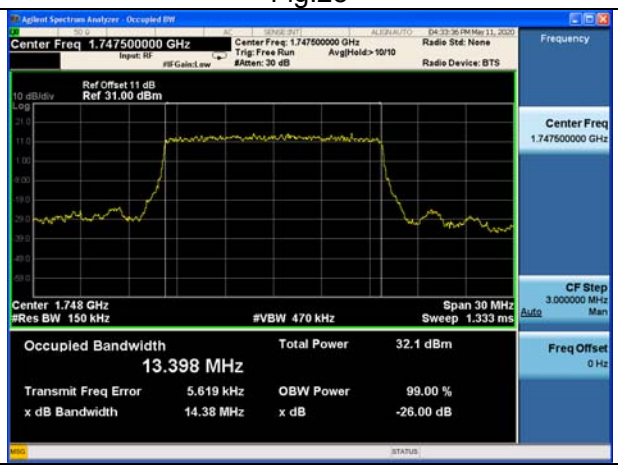

Fig.30

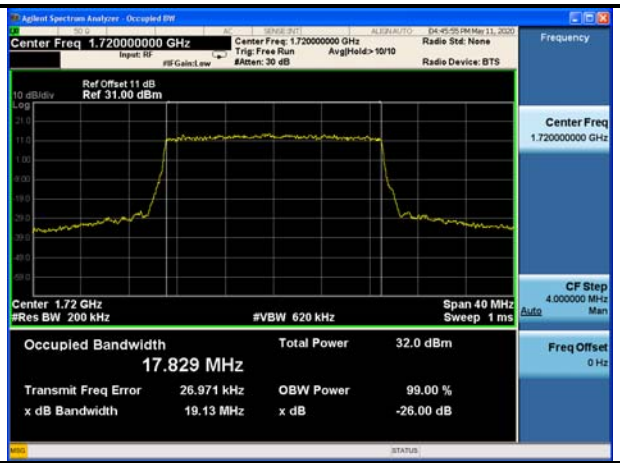

Fig.31

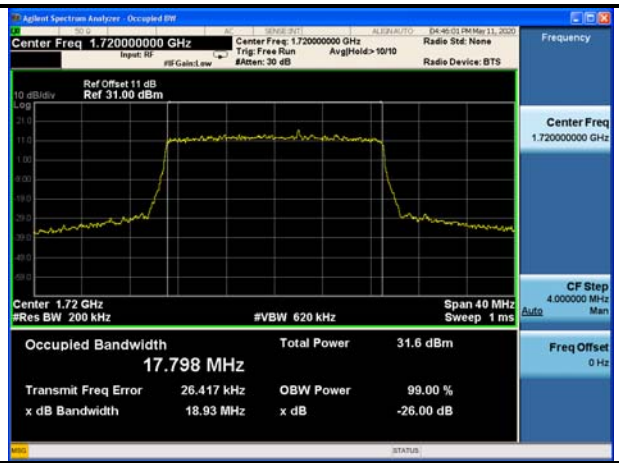

Fig.32

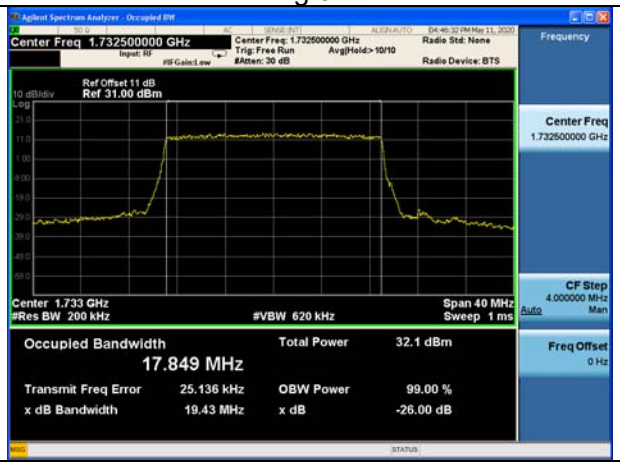

Fig.33

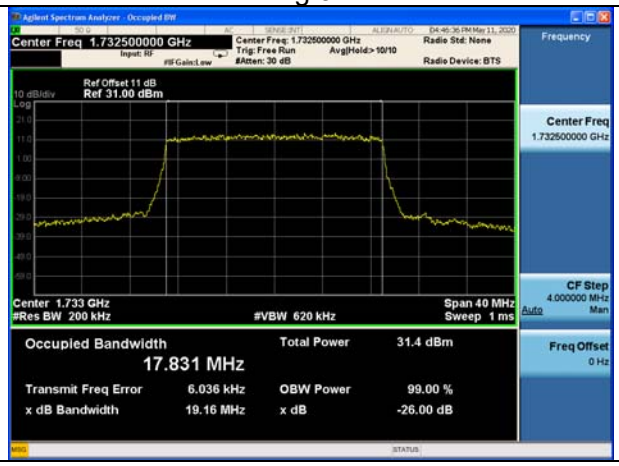

Fig.34

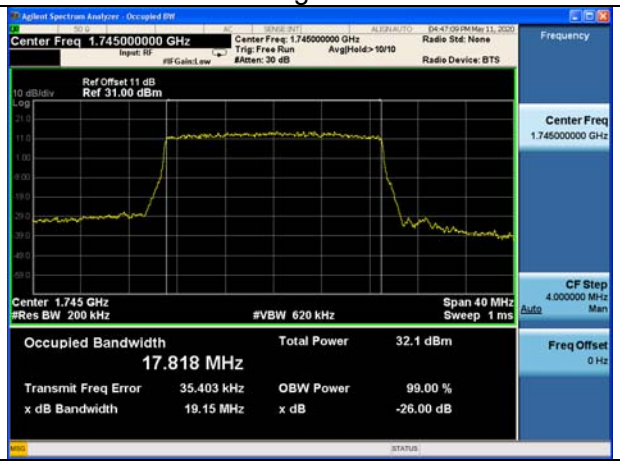

Fig.35

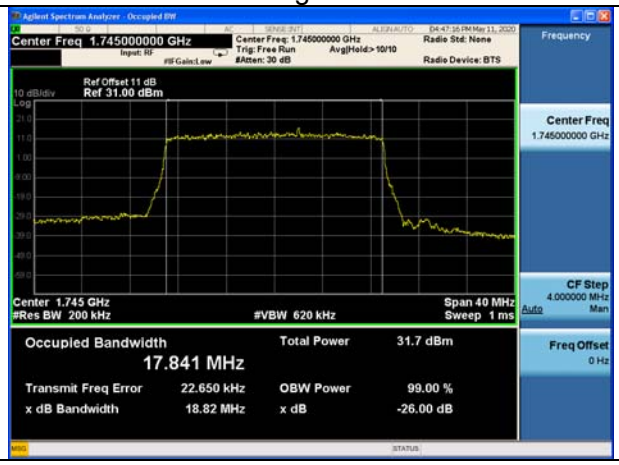

Fig.36

3 Peak-Average Ratio

Band	Carrier frequency (MHz)	Channel	BW (MHz)	RB Size	RB Offset	QPSK	16-QAM
4	1732.5	20175	1.4	1	0	Fig.1	Fig.2
			3	1	0	Fig.3	Fig.4
			5	1	0	Fig.5	Fig.6
			10	1	0	Fig.7	Fig.8
			15	1	0	Fig.9	Fig.10
			20	1	0	Fig.11	Fig.12

Fig.1

Fig.2

Fig.3

Fig.4


Agilent Spectrum Analyzer - Power Stat CCDF
Center Freq 1.732500000 GHz
Center Freq: 1.732500000 GHz
Trig: Free Run
#Atten: 30 dB
Counts:1.13 M/10.0 Mpt
Radio Std: None
Frequency
Average Power
24.06 dBm
50.37 % at 0dB
Gaussian
100 %
10 %
1 %
0.1 %
0.01 %
0.001 %
0.0001 %
10.0 % 2.38 dB
1.0 % 3.54 dB
0.1 % 3.99 dB
0.01 % 4.24 dB
0.001 % 4.42 dB
0.0001 % 4.49 dB
Peak 4.49 dB
28.55 dBm
0 dB
20 dB
Info BW 25.000 MHz
Center Freq
1.732500000 GHz
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

Fig.5


Agilent Spectrum Analyzer - Power Stat CCDF
Center Freq 1.732500000 GHz
Center Freq: 1.732500000 GHz
Trig: Free Run
#Atten: 30 dB
Counts:3.06 M/10.0 Mpt
Radio Std: None
Frequency
Average Power
23.18 dBm
46.19 % at 0dB
Gaussian
100 %
10 %
1 %
0.1 %
0.01 %
0.001 %
0.0001 %
10.0 % 2.95 dB
1.0 % 4.28 dB
0.1 % 4.75 dB
0.01 % 5.02 dB
0.001 % 5.20 dB
0.0001 % 5.30 dB
Peak 5.34 dB
28.52 dBm
0 dB
20 dB
Info BW 25.000 MHz
Center Freq
1.732500000 GHz
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

Fig.6


Agilent Spectrum Analyzer - Power Stat CCDF
Center Freq 1.732500000 GHz
Center Freq: 1.732500000 GHz
Trig: Free Run
#Atten: 30 dB
Counts:405 k/10.0 Mpt
Radio Std: None
Frequency
Average Power
24.01 dBm
50.14 % at 0dB
Gaussian
100 %
10 %
1 %
0.1 %
0.01 %
0.001 %
0.0001 %
10.0 % 2.35 dB
1.0 % 3.55 dB
0.1 % 4.10 dB
0.01 % 4.35 dB
0.001 % 4.58 dB
0.0001 % --- dB
Peak 4.67 dB
28.68 dBm
0 dB
20 dB
Info BW 25.000 MHz
Center Freq
1.732500000 GHz
CF Step
5.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS


Agilent Spectrum Analyzer - Power Stat CCDF
Ref Offset 11.00 dB
Center Freq: 1.732500000 GHz
Trig: Free Run
#Atten: 30 dB
Counts:270 k/10.0 Mpt
Radio Std: None
AmptdY Scale
Average Power
22.72 dBm
49.71 % at 0dB
Gaussian
100 %
10 %
1 %
0.1 %
0.01 %
0.001 %
0.0001 %
10.0 % 2.39 dB
1.0 % 3.67 dB
0.1 % 4.28 dB
0.01 % 4.57 dB
0.001 % 4.82 dB
0.0001 % --- dB
Peak 4.91 dB
27.63 dBm
0 dB
20 dB
Info BW 25.000 MHz
Ref Lvl Offset
11.00 dB
Internal Preamp
Off
More
2 of 2
MSG
STATUS

Fig.7

Fig.8

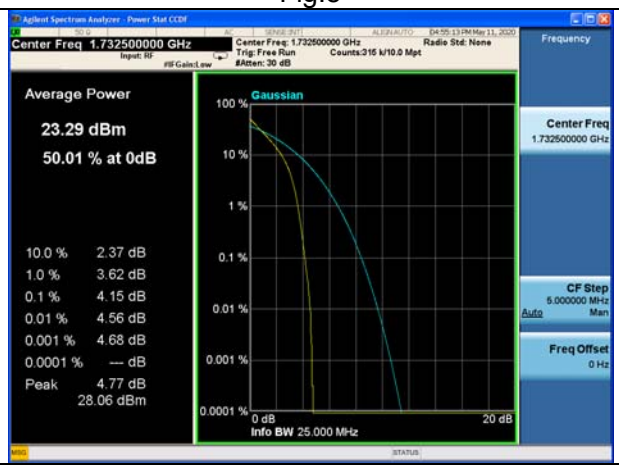

Fig.9

Fig.10

Fig.11

Fig.12

4 Spurious Emissions at antenna terminal

Band	Carrier frequency (MHz)	Channel	BW	RB Size	RB Offset	Conducted Spurious Plot
						QPSK
4	1720	20050	20	1	0	Fig.1-2
	1732.5	20175	20	1	0	Fig.3-4
	1745	20300	20	1	0	Fig.5-6

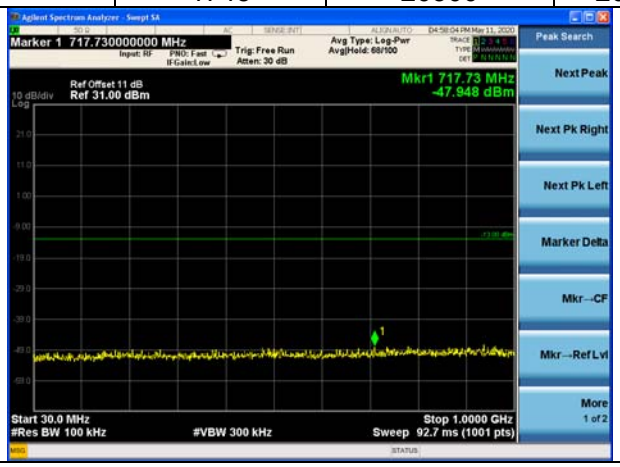

Fig.1

Fig.2

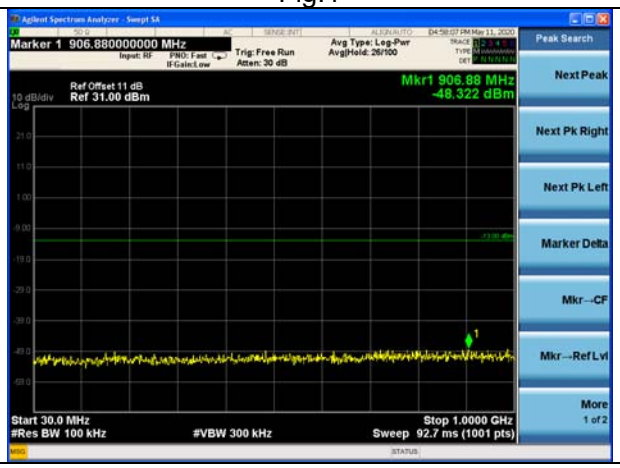

Fig3

Fig4

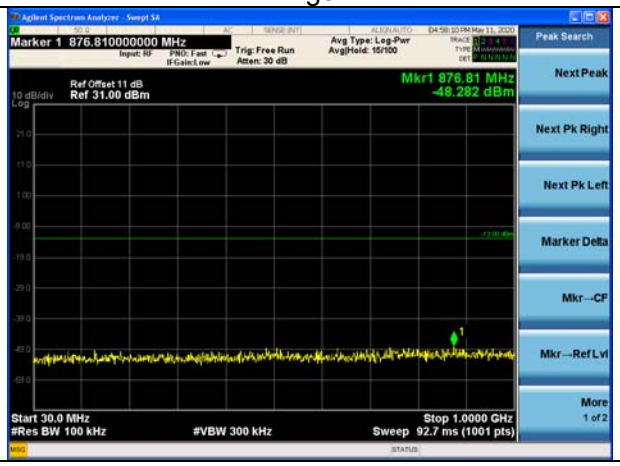

Fig5

Fig6

5 Band Edges Compliance

Test result

Band	Carrier frequency (MHz)	Channel	BW	RB Size	RB Offset	Band Edges Plot
						QPSK
4	1710.7	19957	1.4	1	0	Fig.1
				6	0	Fig.2
	1754.3	20393		1	5	Fig.3
				6	0	Fig.4
	1711.5	19965	3	1	0	Fig.5
				15	0	Fig.6
	1753.5	20385		1	14	Fig.7
				15	0	Fig.8
	1712.5	19975	5	1	0	Fig.9
				25	0	Fig.10
	1752.5	20375		1	24	Fig.11
				25	0	Fig.12
	1715	20000	10	1	0	Fig.13
				50	0	Fig.14
	1750	20350		1	49	Fig.15
				50	0	Fig.16
	1717.5	20025	15	1	0	Fig.17
				75	0	Fig.18
	1747.5	20325		1	74	Fig.19
				75	0	Fig.20
	1720	20050	20	1	0	Fig.21
				100	0	Fig.22
	1745	20300		1	99	Fig.23
				100	0	Fig.24

Fig.1

Fig.2

Fig.3

Fig.4

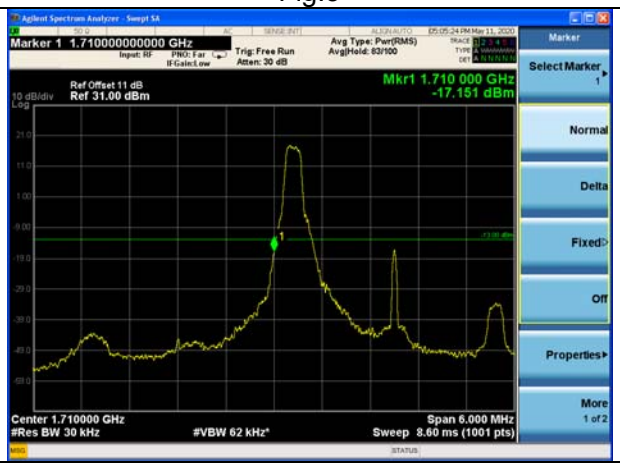

Fig.5

Fig.6

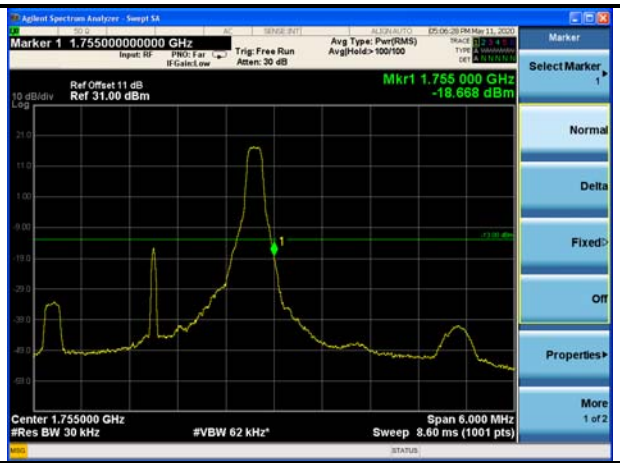

Fig.7

Fig.8

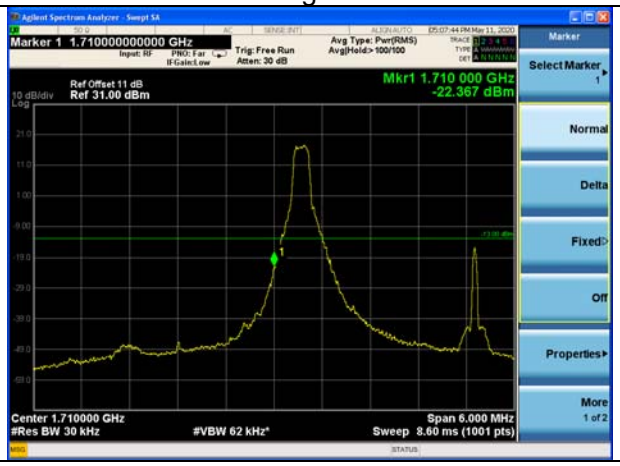

Fig.9

Fig.10

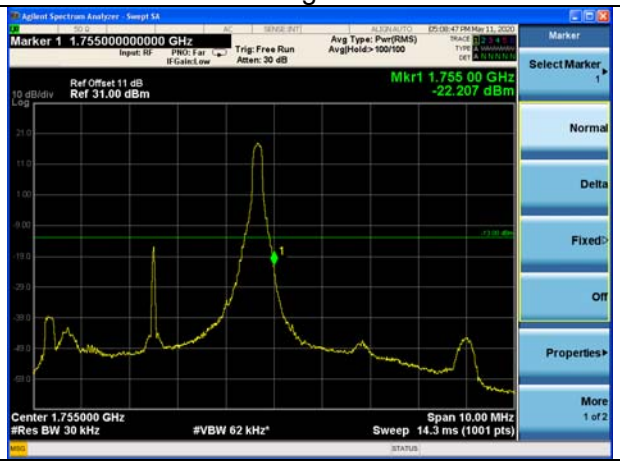

Fig.11

Fig.12

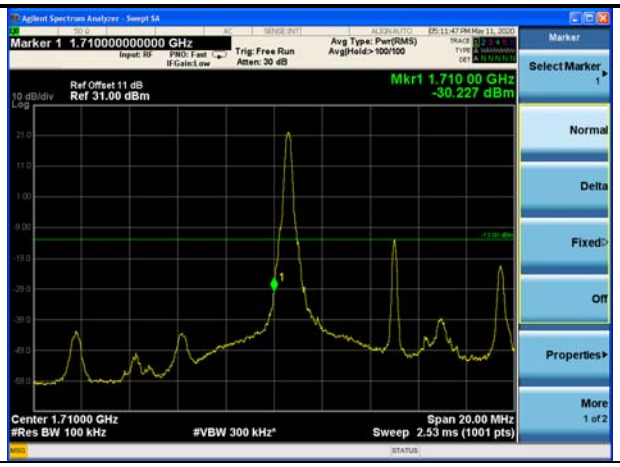

Fig.13

Fig.14

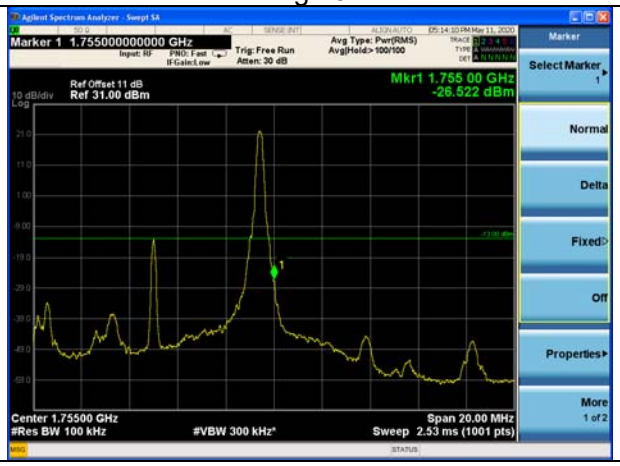

Fig.15

Fig.16

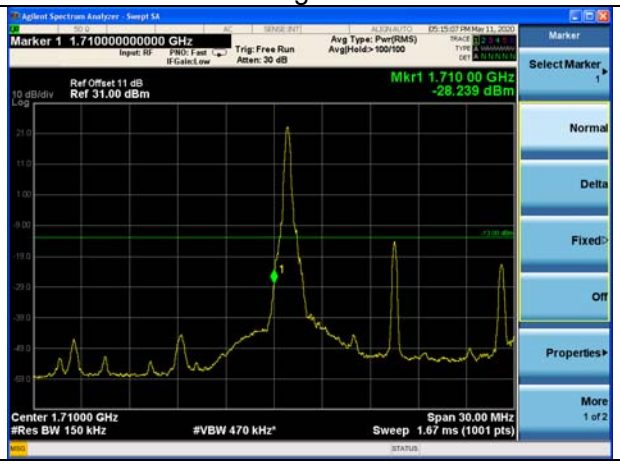

Fig.17

Fig.18

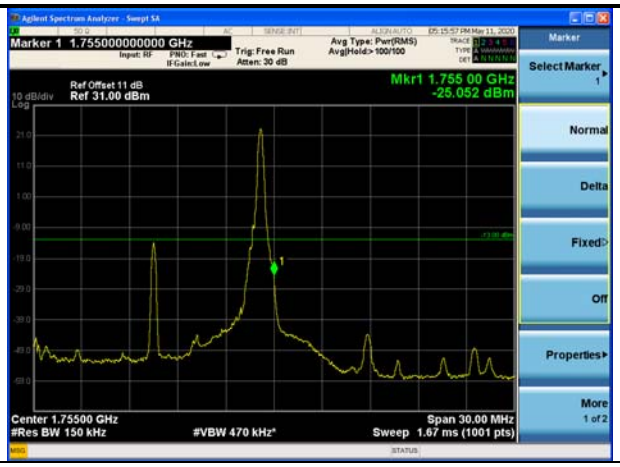

Fig.19

Fig.20

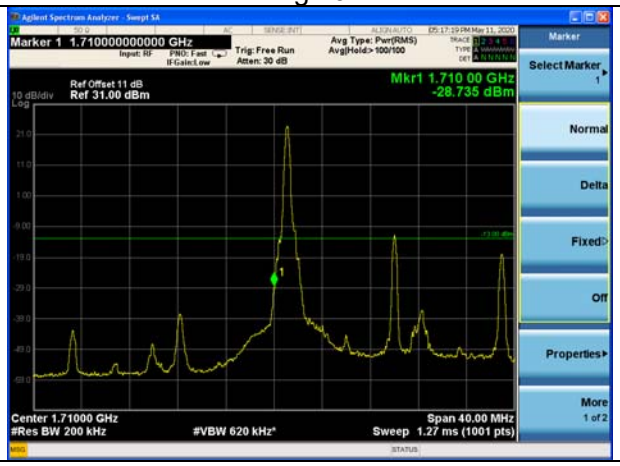

Fig.21

Fig.22

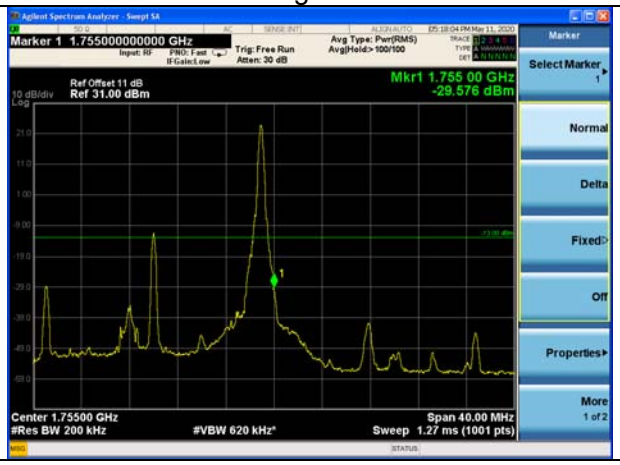

Fig.23

Fig.24

6 Frequency Stability

Test result:

Temperature(°C)	Voltage	Test Result (ppm) Band4 Low Channel					
		1.4M	3M	5M	10M	15M	20M
-10	NV	0.013	0.002	0.015	-0.021	-0.012	0.022
0	NV	0.017	0.024	-0.012	-0.011	0.020	0.025
+10	NV	-0.007	-0.018	-0.005	0.013	0.014	-0.030
+20	NV	0.000	0.000	0.000	0.000	0.000	0.000
+30	NV	0.011	-0.007	-0.024	0.020	0.025	-0.026
+40	NV	0.021	-0.012	-0.020	0.018	0.036	0.018
+50	NV	0.011	-0.024	0.027	0.017	-0.007	0.014
+55	NV	-0.012	-0.021	-0.015	-0.016	0.006	-0.030
+20	LV	-0.017	-0.009	0.026	-0.022	0.016	-0.031
+20	HV	0.027	-0.030	0.025	0.023	0.014	-0.007

Temperature(°C)	Voltage	Test Result (ppm) Band4 High Channel					
		1.4M	3M	5M	10M	15M	20M
-10	NV	0.009	0.018	0.004	0.002	0.024	-0.028
0	NV	0.019	-0.003	-0.011	0.012	-0.012	0.017
+10	NV	-0.009	-0.018	0.021	-0.006	0.024	0.033
+20	NV	0.000	0.000	0.000	0.000	0.000	0.000
+30	NV	-0.011	0.023	0.024	0.011	0.029	0.018
+40	NV	-0.026	0.017	0.018	-0.003	0.005	-0.020
+50	NV	-0.013	-0.027	0.032	-0.016	-0.016	0.021
+55	NV	-0.013	0.016	0.027	0.018	0.006	0.011
+20	LV	0.021	-0.012	0.005	0.019	0.014	0.027
+20	HV	-0.028	0.021	-0.005	-0.017	0.016	-0.024