



International Civil Aviation Organization

**THE TENTH MEETING OF ASIA/PACIFIC OPMET MANAGEMENT
TASK FORCE (OPMET/M TF/10)**

Bangkok, Thailand, 17 – 19 April 2012

Agenda Item 4: OPMET Monitoring and Quality control procedures

RODB TOKYO PERFORMANCE INDICES FOR METAR AND TAF

(Presented by Japan)

SUMMARY

This paper shows the Performance Indices (PIs) of METAR (SA) and TAF (FT) reports received by RODB Tokyo in January 2012.

This paper relates to

Strategic Objectives:

A: Safety – Enhance global civil aviation safety

D: Efficiency – Enhance the efficiency of aviation operations

Global Plan Initiatives:

GPI-19 Meteorological Systems

1. Introduction

1.1 RODB Tokyo carried out the OPMET monitoring of incoming METARs (SA) and TAFs (FT) for the periods of 1-31 January 2012.

2. Result of monitoring

2.1 PIs include indices of availability, compliance and regularity for SA and FT as shown in the attachment to this paper.

3. Action by the meeting

3.1 The meeting is invited to discuss the PIs presented.

Monitoring Results of PIs Measurements

| | 1-31 January 2012 | | | | | |
|--------------------|-------------------|------------|------------|--------------|------------|------------|
| | SA | | | FT | | |
| Bulletin/Aerodrome | Availability | Compliance | Regularity | Availability | Compliance | Regularity |
| AE31 VTBB | | | | | | |
| VDPP | 1.00 | 0.74 | 0.84 | | | |
| VDSR | 1.00 | 0.69 | 0.81 | | | |
| VLVT | 1.00 | 0.51 | 0.90 | | | |
| VTBD | | | | 1.00 | 1.00 | 0.97 |
| VTBS | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 |
| VTBU | 1.00 | 0.90 | 0.94 | 1.00 | 1.00 | 0.77 |
| VTCC | 1.00 | 1.00 | 0.74 | 1.00 | 1.00 | 0.84 |
| VTCT | | | | 1.00 | 1.00 | 0.84 |
| VTSG | | | | 1.00 | 1.00 | 0.77 |
| VTSP | 1.00 | 0.97 | 0.84 | 1.00 | 1.00 | 0.77 |
| VTSS | 1.00 | 1.00 | 0.84 | 1.00 | 0.98 | 0.87 |
| VTUU | | | | 1.00 | 0.98 | 0.65 |
| VVDN | 1.00 | 0.99 | 0.65 | | | |
| VVNB | 1.00 | 1.00 | 0.77 | | | |
| VVPB | 1.00 | 1.00 | 0.71 | | | |
| VVTS | 1.00 | 0.97 | 0.97 | | | |
| VYMD | 0.32 | 0.00 | 1.00 | | | |
| VYYY | 0.35 | 0.03 | 0.35 | | | |
| | | | | | | |
| AE32 VTBB | | | | | | |
| VDPP | | | | 1.00 | 0.94 | 0.94 |
| VDSR | | | | 1.00 | 0.93 | 0.94 |
| VVDN | | | | 1.00 | 0.99 | 0.84 |
| VVNB | | | | 1.00 | 1.00 | 0.87 |
| VVPB | | | | 1.00 | 0.99 | 0.81 |
| VVTS | | | | 1.00 | 0.98 | 0.87 |
| VYMD | | | | 0.94 | 0.69 | 0.55 |
| VYYY | | | | 1.00 | 0.73 | 0.87 |
| | | | | | | |
| AE33 VTBB | | | | | | |
| VLLB | | | | 0.97 | 0.65 | 0.97 |
| VLLN | | | | 1.00 | 0.67 | 1.00 |
| VLPS | | | | 1.00 | 0.67 | 1.00 |
| VLSK | | | | 1.00 | 0.67 | 1.00 |
| VLVT | | | | 1.00 | 0.75 | 0.68 |
| | | | | | | |
| AU31 AMMC | | | | | | |
| YBAS | 1.00 | 1.00 | 0.97 | | | |
| YBBN | 1.00 | 1.00 | 0.97 | | | |

| | | | | | | |
|-----------|------|------|------|------|------|------|
| YBCG | | | | | | |
| YBCS | 1.00 | 1.00 | 1.00 | | | |
| YBTL | 1.00 | 1.00 | 1.00 | | | |
| YMML | 1.00 | 0.91 | 0.87 | | | |
| YPAD | 1.00 | 0.98 | 0.90 | | | |
| YPCC | 1.00 | 1.00 | 1.00 | | | |
| YPDN | 1.00 | 0.99 | 1.00 | | | |
| YPKU | 0.87 | 0.85 | 0.71 | | | |
| YPLM | 1.00 | 0.98 | 0.97 | | | |
| YPPH | 1.00 | 1.00 | 0.94 | | | |
| YPTN | 1.00 | 1.00 | 0.90 | | | |
| YPXM | 1.00 | 0.94 | 0.87 | | | |
| YSSY | 1.00 | 0.88 | 0.74 | | | |
| YBAS | 1.00 | 0.97 | 0.55 | | | |
| YBCG | 1.00 | 0.93 | 0.77 | | | |
| YBCS | 1.00 | 0.99 | 0.94 | | | |
| YBTL | 1.00 | 0.97 | 0.84 | | | |
| YCFS | 1.00 | 0.87 | 0.58 | | | |
| YHID | 1.00 | 0.97 | 0.81 | | | |
| YMML | 1.00 | 0.97 | 0.84 | | | |
| YPAD | 1.00 | 0.98 | 0.87 | | | |
| YPCC | 1.00 | 0.98 | 0.97 | | | |
| YPDN | 1.00 | 0.94 | 0.71 | | | |
| YPJT | 1.00 | 0.95 | 0.81 | | | |
| YPKU | 0.87 | 0.83 | 0.65 | | | |
| YPLM | 1.00 | 0.95 | 0.97 | | | |
| YPPH | 1.00 | 0.97 | 0.87 | | | |
| YPTN | 1.00 | 0.97 | 0.90 | | | |
| YPXM | 1.00 | 0.68 | 0.81 | | | |
| YSCB | 1.00 | 0.96 | 0.74 | | | |
| YSSY | 1.00 | 0.95 | 0.90 | | | |
| YSTW | 1.00 | 0.98 | 0.90 | | | |
| | | | | | | |
| AU31 YBBN | | | | | | |
| YBBN | | | | 1.00 | 0.98 | 0.90 |
| YMML | | | | 1.00 | 0.97 | 0.84 |
| YPAD | | | | 1.00 | 0.98 | 0.90 |
| YPDN | | | | 1.00 | 0.99 | 0.97 |
| YPPH | | | | 1.00 | 0.98 | 0.77 |
| YSSY | | | | 1.00 | 1.00 | 1.00 |
| | | | | | | |
| AU32 AMMC | | | | | | |
| YAMB | 1.00 | 1.00 | 1.00 | | | |
| YBHM | 1.00 | 0.99 | 0.68 | | | |
| YBMA | 1.00 | 1.00 | 1.00 | | | |
| YBRK | 1.00 | 0.98 | 0.84 | | | |
| YBRM | 1.00 | 1.00 | 0.97 | | | |

| | | | | | | |
|-----------|------|------|------|------|------|------|
| YCIN | 1.00 | 1.00 | 1.00 | | | |
| YFRT | 1.00 | 1.00 | 1.00 | | | |
| YMAV | 1.00 | 1.00 | 0.94 | | | |
| YMHB | 1.00 | 1.00 | 0.87 | | | |
| YMLT | 1.00 | 0.95 | 0.84 | | | |
| YPEA | 1.00 | 0.98 | 0.94 | | | |
| YPGV | 1.00 | 0.99 | 0.84 | | | |
| YPKG | 1.00 | 1.00 | 1.00 | | | |
| YPPD | 1.00 | 1.00 | 1.00 | | | |
| YSDU | 1.00 | 1.00 | 0.97 | | | |
| YSNF | 1.00 | 0.99 | 0.71 | | | |
| YSRI | 1.00 | 1.00 | 1.00 | | | |
| YWLM | 1.00 | 1.00 | 1.00 | | | |
| | | | | | | |
| AU32 YBBN | | | | | | |
| YAMB | 1.00 | 0.95 | 0.68 | | | |
| YBAS | | | | 1.00 | 1.00 | 0.84 |
| YBCG | | | | 1.00 | 0.98 | 0.68 |
| YBCS | | | | 1.00 | 0.98 | 0.97 |
| YBHM | 1.00 | 0.92 | 0.68 | | | |
| YBMA | 1.00 | 0.98 | 1.00 | | | |
| YBRK | 1.00 | 0.96 | 0.87 | | | |
| YBRM | 1.00 | 0.98 | 0.90 | | | |
| YBTL | | | | 1.00 | 0.93 | 0.81 |
| YCIM | 1.00 | 1.00 | 0.94 | | | |
| YFRT | 1.00 | 0.98 | 1.00 | | | |
| YGEL | 1.00 | 0.94 | 0.58 | 1.00 | 0.97 | 0.84 |
| YMAV | 1.00 | 0.97 | 0.81 | 1.00 | 0.95 | 0.97 |
| YMHB | 1.00 | 0.96 | 0.77 | | | |
| YMLT | 1.00 | 0.97 | 0.81 | | | |
| YPEA | 1.00 | 0.95 | 0.81 | | | |
| YPGV | 1.00 | 0.95 | 0.87 | | | |
| YPKG | 1.00 | 0.98 | 0.90 | 1.00 | 1.00 | 0.87 |
| YPLM | | | | 1.00 | 1.00 | 0.90 |
| YPPD | 1.00 | 0.97 | 0.77 | | | |
| YPTN | | | | 1.00 | 1.00 | 0.87 |
| YPWR | 1.00 | 0.98 | 0.87 | | | |
| YSCB | | | | 1.00 | 1.00 | 0.77 |
| YSDU | 1.00 | 0.97 | 0.52 | | | |
| YSNF | 1.00 | 0.96 | 0.97 | | | |
| YSRI | 1.00 | 0.97 | 0.87 | | | |
| YWLM | 1.00 | 0.98 | 0.94 | | | |
| | | | | | | |
| AU33 YBBN | | | | | | |
| YBRK | | | | 1.00 | 0.99 | 0.77 |
| YBRM | | | | 1.00 | 0.98 | 0.90 |
| YCFS | | | | 1.00 | 0.89 | 0.84 |

| | | | | | | |
|-----------|------|------|------|------|------|------|
| YHID | | | | 1.00 | 0.96 | 0.90 |
| YMHB | | | | 1.00 | 0.98 | 0.77 |
| YMLT | | | | 1.00 | 0.97 | 0.71 |
| YPCC | | | | 1.00 | 1.00 | 0.97 |
| YPEA | | | | 1.00 | 0.98 | 0.74 |
| YPJT | | | | 1.00 | 1.00 | 0.81 |
| YPPD | | | | 1.00 | 0.98 | 0.87 |
| YPWR | | | | 1.00 | 0.97 | 0.74 |
| YPXM | | | | 1.00 | 0.98 | 0.90 |
| YSDU | | | | 1.00 | 0.95 | 0.84 |
| YSNF | | | | 1.00 | 0.96 | 0.87 |
| YSRI | | | | 1.00 | 0.96 | 0.84 |
| YSTW | | | | 1.00 | 0.94 | 0.71 |
| YWLM | | | | 1.00 | 0.92 | 0.77 |
| | | | | | | |
| AU34 YBBN | | | | | | |
| YAMB | | | | 1.00 | 0.97 | 0.87 |
| YBHM | | | | 1.00 | 0.94 | 0.87 |
| YBMA | | | | 1.00 | 0.99 | 0.84 |
| YPGV | | | | 1.00 | 0.98 | 0.81 |
| YPKU | | | | 1.00 | 0.81 | 0.84 |
| | | | | | | |
| AU35 YBBN | | | | | | |
| YCIN | | | | 1.00 | 0.98 | 0.81 |
| YFRT | | | | 1.00 | 0.98 | 0.81 |
| | | | | | | |
| BN31 OBBI | | | | | | |
| OBBI | 1.00 | 1.00 | 0.84 | 1.00 | 0.99 | 0.97 |
| OEDF | 1.00 | 0.97 | 0.81 | 1.00 | 0.99 | 0.94 |
| OEDR | 1.00 | 0.96 | 0.74 | 1.00 | 0.99 | 0.94 |
| OKBK | 1.00 | 1.00 | 0.87 | 1.00 | 0.99 | 0.90 |
| OTBD | 1.00 | 1.00 | 0.94 | 1.00 | 0.99 | 0.97 |
| | | | | | | |
| BN32 OBBI | | | | | | |
| OMAA | 1.00 | 1.00 | 0.84 | 1.00 | 0.99 | 0.94 |
| OMAD | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | 0.94 |
| OMAL | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 0.94 |
| OMDB | 1.00 | 1.00 | 0.87 | 1.00 | 0.99 | 0.94 |
| OMDW | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 0.94 |
| OMFJ | 1.00 | 1.00 | 0.84 | 1.00 | 0.94 | 0.90 |
| OMRK | 1.00 | 1.00 | 0.84 | 1.00 | 0.99 | 0.94 |
| OMSJ | 1.00 | 1.00 | 0.84 | 1.00 | 0.98 | 0.94 |
| OOMS | 1.00 | 0.99 | 0.97 | 1.00 | 0.91 | 0.87 |
| OOSA | 1.00 | 0.94 | 0.90 | 0.94 | 0.39 | 1.00 |
| | | | | | | |
| CI31 ZBBB | | | | | | |
| ZBAA | 1.00 | 1.00 | 0.90 | 1.00 | 1.00 | 1.00 |

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|-----------|------|------|------|------|------|------|
| ZBSJ | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 | 0.87 |
| ZBTJ | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | 0.97 |
| ZBYN | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 0.90 |
| ZGGG | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| ZSHC | 1.00 | 1.00 | 0.94 | 1.00 | 0.99 | 0.97 |
| ZSPD | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| ZSSS | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| ZWSH | 1.00 | 0.93 | 1.00 | 1.00 | 1.00 | 1.00 |
| ZWWW | 1.00 | 1.00 | 0.94 | 1.00 | 0.99 | 0.97 |
| ZYTL | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 |
| ZYTX | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 |
| | | | | | | |
| CI32 KWBC | | | | | | |
| ZGNN | | | | 1.00 | 0.99 | 0.97 |
| ZGSG | | | | | | |
| ZMUB | 1.00 | 0.98 | 0.87 | 1.00 | 1.00 | 0.90 |
| ZPPP | | | | 1.00 | 0.99 | 0.97 |
| ZSAM | | | | 1.00 | 0.99 | 0.97 |
| ZUUU | | | | 1.00 | 0.98 | 0.52 |
| | | | | | | |
| CI32 ZBBB | | | | | | |
| ZGKL | 1.00 | 0.99 | 0.87 | 1.00 | 0.98 | 0.94 |
| ZGNN | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 0.97 |
| ZGOW | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 0.97 |
| ZGSZ | 1.00 | 0.99 | 0.84 | 1.00 | 0.97 | 0.87 |
| ZLXY | 1.00 | 0.99 | 0.87 | 1.00 | 0.96 | 0.81 |
| ZMUB | 1.00 | 0.95 | 0.94 | 1.00 | 0.92 | 0.58 |
| ZPPP | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 0.97 |
| ZSAM | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 0.97 |
| ZSFZ | 1.00 | 1.00 | 0.90 | 1.00 | 1.00 | 0.94 |
| ZSNB | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 | 1.00 |
| ZSQD | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 |
| ZUUU | 1.00 | 1.00 | 0.90 | 1.00 | 0.98 | 0.90 |
| | | | | | | |
| CI41 ZBBB | | | | | | |
| ZBHH | 1.00 | 1.00 | 1.00 | 1.00 | 0.98 | 0.90 |
| ZGHA | 1.00 | 0.99 | 0.97 | 1.00 | 0.98 | 0.94 |
| ZHCC | 1.00 | 1.00 | 0.97 | 1.00 | 0.99 | 0.97 |
| ZHHH | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 | 1.00 |
| ZJHK | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 |
| ZJSY | 1.00 | 0.99 | 0.87 | 1.00 | 0.99 | 0.97 |
| ZLLL | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 0.97 |
| ZSNJ | 1.00 | 1.00 | 0.97 | 1.00 | 0.97 | 0.87 |
| ZSOF | 1.00 | 0.97 | 0.87 | 1.00 | 1.00 | 1.00 |
| ZUCK | 1.00 | 1.00 | 0.97 | 1.00 | 0.98 | 0.90 |
| ZYCC | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 | 1.00 |
| ZYHB | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 0.97 |

| | | | | | | | |
|-----------|------|------|------|------|------|------|--|
| EG31HECA | | | | | | | |
| HEAX | | | | 1.00 | 0.97 | 0.87 | |
| HEBL | | | | 1.00 | 0.97 | 0.87 | |
| HECA | | | | 1.00 | 0.97 | 0.87 | |
| HELX | | | | 1.00 | 0.97 | 0.87 | |
| HEMA | | | | 1.00 | 0.96 | 0.87 | |
| HESN | | | | 1.00 | 0.97 | 0.87 | |
| HETB | | | | 1.00 | 0.97 | 0.87 | |
| EG32HECA | | | | | | | |
| HEAX | 1.00 | 0.93 | 0.68 | | | | |
| HEBA | 0.90 | 0.44 | 0.00 | 1.00 | 0.97 | 0.87 | |
| HEBL | 0.68 | 0.56 | 0.00 | | | | |
| HEGN | 1.00 | 0.93 | 0.61 | 1.00 | 0.96 | 0.87 | |
| HELX | 1.00 | 0.93 | 0.68 | | | | |
| HEMA | 1.00 | 0.62 | 0.94 | | | | |
| HEMM | 1.00 | 0.93 | 0.68 | 1.00 | 0.97 | 0.87 | |
| HEPS | 1.00 | 0.92 | 0.65 | 1.00 | 0.97 | 0.87 | |
| HESC | 0.03 | 0.00 | 1.00 | 1.00 | 0.97 | 0.87 | |
| HESH | 1.00 | 0.93 | 0.68 | 1.00 | 0.97 | 0.87 | |
| HESN | 1.00 | 0.61 | 0.68 | | | | |
| HETB | 1.00 | 0.73 | 0.77 | | | | |
| HK31 VHHH | | | | | | | |
| RCKH | 1.00 | 1.00 | 0.87 | 1.00 | 1.00 | 1.00 | |
| RCSS | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| RCTP | 1.00 | 1.00 | 1.00 | 1.00 | 0.99 | 0.97 | |
| RPLB | 1.00 | 0.84 | 0.94 | 1.00 | 0.98 | 0.90 | |
| RPLI | 0.94 | 0.22 | 0.84 | 1.00 | 0.98 | 0.84 | |
| RPLL | 1.00 | 1.00 | 0.84 | 1.00 | 0.98 | 0.90 | |
| RPMD | 0.16 | 0.01 | 1.00 | 1.00 | 0.98 | 0.87 | |
| RPMZ | 1.00 | 0.67 | 0.77 | 1.00 | 0.98 | 0.77 | |
| RPVM | 1.00 | 0.97 | 0.87 | 1.00 | 0.98 | 0.90 | |
| VHHH | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | |
| VMMC | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | |
| ID31 WIII | | | | | | | |
| WAAA | 1.00 | 0.99 | 0.90 | | | | |
| WABB | 0.87 | 0.99 | 1.00 | | | | |
| WADD | 1.00 | 0.90 | 0.94 | | | | |
| WARR | 1.00 | 0.77 | 0.65 | | | | |
| WIDD | 0.77 | 0.15 | 1.00 | | | | |
| WIHH | 1.00 | 0.18 | 0.90 | | | | |
| WIII | 1.00 | 0.97 | 0.90 | | | | |
| WIMM | 1.00 | 0.95 | 0.84 | | | | |

| | | | | | | |
|-----------|------|------|------|------|------|------|
| ID32 WIII | | | | | | |
| WALL | 0.71 | 0.10 | 1.00 | | | |
| WAMM | 1.00 | 0.87 | 0.68 | | | |
| WAOO | 1.00 | 0.41 | 0.35 | | | |
| WIBB | 1.00 | 0.54 | 0.87 | | | |
| WIOO | 0.97 | 0.55 | 0.84 | | | |
| WIPP | 1.00 | 0.65 | 1.00 | | | |
| WIPT | 1.00 | 0.65 | 1.00 | | | |
| | | | | | | |
| ID33 WIII | | | | | | |
| WAJJ | 0.26 | 0.55 | 1.00 | | | |
| WAPP | 0.55 | 0.09 | 1.00 | | | |
| WARS | 0.39 | 0.03 | 0.00 | | | |
| WATT | 0.90 | 0.15 | 0.81 | | | |
| | | | | | | |
| IN31 VABB | | | | | | |
| VAAH | | | | 1.00 | 0.96 | 1.00 |
| VABB | | | | 1.00 | 0.98 | 1.00 |
| VANP | | | | 1.00 | 0.98 | 1.00 |
| VECC | | | | 1.00 | 0.91 | 1.00 |
| VEPT | | | | 1.00 | 0.56 | 1.00 |
| VIAR | | | | 1.00 | 0.96 | 1.00 |
| VIBN | | | | 1.00 | 0.96 | 1.00 |
| VIDP | | | | 1.00 | 0.97 | 1.00 |
| VIJP | | | | 1.00 | 0.97 | 1.00 |
| VILK | | | | 1.00 | 0.97 | 1.00 |
| VIAR | | | | 1.00 | 0.96 | 0.65 |
| VIBN | | | | 1.00 | 0.96 | 0.65 |
| VIDP | | | | 1.00 | 0.98 | 0.65 |
| VIJP | | | | 1.00 | 0.97 | 0.77 |
| VILK | | | | 1.00 | 0.98 | 0.74 |
| | | | | | | |
| IN32 VABB | | | | | | |
| VCBI | | | | 0.98 | 0.98 | 0.97 |
| VNKT | | | | 0.40 | 0.40 | 1.00 |
| VOCI | | | | 0.99 | 0.99 | 0.97 |
| VOCL | | | | 0.99 | 0.99 | 0.97 |
| VOHS | | | | 0.99 | 0.99 | 0.97 |
| VOHY | | | | 0.02 | 0.02 | 1.00 |
| VOMM | | | | 0.98 | 0.98 | 0.90 |
| VOTR | | | | 0.98 | 0.98 | 0.90 |
| VOTV | | | | 0.99 | 0.99 | 0.97 |
| | | | | | | |
| IN32 VIDP | | | | | | |
| VIAR | 0.29 | 0.03 | 1.00 | | | |
| VIDP | 1.00 | 0.82 | 0.77 | | | |
| VIJP | 0.54 | 0.27 | 1.00 | | | |

| | | | | | | |
|-----------|------|------|------|------|------|------|
| VILK | 0.87 | 0.24 | 1.00 | | | |
| | | | | | | |
| IR31 OIII | | | | | | |
| OIAW | 1.00 | 0.89 | 0.48 | 1.00 | 0.98 | 0.94 |
| OIFM | 1.00 | 0.96 | 0.81 | 1.00 | 0.98 | 0.94 |
| OIII | 1.00 | 0.97 | 0.65 | 1.00 | 0.98 | 0.94 |
| OIKB | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 | 0.94 |
| OIKK | 1.00 | 0.96 | 0.90 | 1.00 | 0.98 | 0.94 |
| OIMM | 1.00 | 0.97 | 0.71 | 1.00 | 0.98 | 0.94 |
| OISS | 1.00 | 0.96 | 0.74 | 1.00 | 0.98 | 0.94 |
| OITT | 1.00 | 0.97 | 0.81 | 1.00 | 0.98 | 0.94 |
| OIZH | 1.00 | 0.95 | 0.87 | 1.00 | 0.98 | 0.94 |
| | | | | | | |
| IR32 OIII | | | | | | |
| OIAA | 1.00 | 0.94 | 0.68 | | | |
| OIBK | 1.00 | 0.90 | 0.77 | 1.00 | 0.99 | 0.94 |
| OICC | 1.00 | 0.95 | 0.87 | | | |
| OIGG | 1.00 | 0.67 | 0.90 | | | |
| OIIE | 1.00 | 0.97 | 0.81 | 1.00 | 0.99 | 0.94 |
| OITR | 1.00 | 0.92 | 0.61 | 1.00 | 0.99 | 0.94 |
| OIYY | 1.00 | 0.95 | 0.90 | | | |
| | | | | | | |
| IR33 OIII | | | | | | |
| OIBB | 1.00 | 0.79 | 0.94 | | | |
| OIBP | 1.00 | 0.68 | 1.00 | | | |
| OICK | 1.00 | 0.33 | 0.90 | | | |
| OICS | 1.00 | 0.41 | 0.94 | | | |
| OIHH | 1.00 | 0.37 | 1.00 | | | |
| OINZ | 1.00 | 0.89 | 0.68 | | | |
| OISR | 0.97 | 0.41 | 0.74 | | | |
| OITL | 1.00 | 0.47 | 0.81 | | | |
| OIZC | 1.00 | 0.54 | 0.00 | | | |
| | | | | | | |
| IR34 OIII | | | | | | |
| OIAG | 1.00 | 0.56 | 0.90 | | | |
| OIAM | 1.00 | 0.97 | 0.94 | | | |
| OICI | 1.00 | 0.93 | 0.97 | | | |
| OIKQ | 1.00 | 0.76 | 1.00 | | | |
| OINN | 1.00 | 0.97 | 0.97 | | | |
| OINR | 1.00 | 0.95 | 0.94 | | | |
| OISL | 1.00 | 0.76 | 0.90 | | | |
| OISY | 1.00 | 0.81 | 0.74 | | | |
| OITZ | 1.00 | 0.50 | 0.81 | | | |
| | | | | | | |
| IR35 OIII | | | | | | |
| OIAD | 1.00 | 0.31 | 0.81 | | | |
| OIBJ | 1.00 | 0.52 | 0.97 | | | |

| | | | | | | |
|----------------|------|------|------|------|------|------|
| OIBS | 1.00 | 0.52 | 0.97 | | | |
| OIHR | 0.29 | 0.05 | 1.00 | | | |
| OIKM | 0.23 | 0.03 | 1.00 | | | |
| | | | | | | |
| IR35 OIII OIKR | 0.06 | 0.02 | 1.00 | | | |
| | | | | | | |
| IR35 OIII | | | | | | |
| OING | 1.00 | 0.93 | 0.94 | | | |
| OIZB | 1.00 | 0.85 | 0.97 | | | |
| OIZI | 1.00 | 0.85 | 0.97 | | | |
| | | | | | | |
| IR36 OIII | | | | | | |
| OIBA | 1.00 | 0.53 | 0.97 | | | |
| OIBV | 1.00 | 0.34 | 1.00 | | | |
| OIFS | 1.00 | 0.92 | 0.94 | | | |
| OIIP | 1.00 | 0.60 | 0.84 | | | |
| OIMB | 1.00 | 0.95 | 0.97 | | | |
| OIMN | 1.00 | 0.63 | 1.00 | | | |
| OIMS | 0.74 | 0.09 | 0.74 | | | |
| OIMT | 0.19 | 0.02 | | | | |
| OIZJ | 1.00 | 0.77 | 1.00 | | | |
| | | | | | | |
| IR37 OIII | | | | | | |
| OIBL | 1.00 | 0.74 | 1.00 | | | |
| OIBQ | 1.00 | 0.55 | 0.97 | | | |
| OIIK | 1.00 | 0.83 | 0.94 | | | |
| OIMC | 1.00 | 0.44 | 0.97 | | | |
| OIMD | 1.00 | 0.44 | 0.97 | | | |
| OIMQ | 1.00 | 0.44 | 0.97 | | | |
| OITK | 0.23 | 0.04 | 1.00 | | | |
| OITM | 1.00 | 0.97 | 1.00 | | | |
| | | | | | | |
| JD31 OJAI | | | | | | |
| OJAI | 1.00 | 0.92 | 0.87 | | | |
| OJAM | 1.00 | 0.95 | 0.90 | | | |
| OJAQ | 1.00 | 0.68 | 0.77 | | | |
| | | | | | | |
| JP31 RJTD | | | | | | |
| RJAA | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| RJBB | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| RJCH | | | | 1.00 | 1.00 | 0.97 |
| RJGG | 1.00 | 1.00 | 1.00 | | | |
| RJOO | 1.00 | 0.67 | 1.00 | 1.00 | 1.00 | 1.00 |
| RJSS | | | | 1.00 | 1.00 | 0.81 |
| RJTT | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| ROAH | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| | | | | | | |

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|-----------|------|------|------|------|------|------|
| JP32 RJTD | | | | | | |
| RJCC | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| RJCH | 1.00 | 0.58 | 1.00 | | | |
| RJFF | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| RJFK | 1.00 | 0.67 | 1.00 | 1.00 | 1.00 | 1.00 |
| RJFO | 1.00 | 0.63 | 1.00 | 1.00 | 1.00 | 1.00 |
| RJFT | 1.00 | 0.62 | 0.97 | 1.00 | 1.00 | 0.81 |
| RJFU | 1.00 | 0.63 | 1.00 | 1.00 | 1.00 | 0.94 |
| RJGG | | | | 1.00 | 1.00 | 1.00 |
| RJNK | | | | 1.00 | 1.00 | 1.00 |
| RJNT | | | | 1.00 | 1.00 | 1.00 |
| RJOA | 1.00 | 0.63 | 1.00 | 1.00 | 1.00 | 0.77 |
| RJOB | 1.00 | 0.63 | 1.00 | 1.00 | 1.00 | 0.81 |
| RJOT | 1.00 | 0.63 | 1.00 | 1.00 | 1.00 | 0.55 |
| RJSN | 1.00 | 0.58 | 1.00 | 1.00 | 1.00 | 1.00 |
| RJSS | 1.00 | 0.67 | 1.00 | | | |
| | | | | | | |
| JP38 RJTD | | | | | | |
| RJAH | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| RJCB | 1.00 | 0.54 | 1.00 | 1.00 | 1.00 | 1.00 |
| RJCK | 1.00 | 0.58 | 1.00 | 1.00 | 1.00 | 1.00 |
| RJCM | 1.00 | 0.54 | 1.00 | 1.00 | 1.00 | 1.00 |
| RJEC | 1.00 | 0.58 | 1.00 | 1.00 | 1.00 | 1.00 |
| RJFM | 1.00 | 0.63 | 1.00 | 1.00 | 1.00 | 0.45 |
| RJFR | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| RJNK | 1.00 | 0.99 | 0.94 | | | |
| RJNS | 1.00 | 0.54 | 1.00 | 1.00 | 1.00 | 0.55 |
| RJNT | 1.00 | 0.63 | 1.00 | | | |
| RJOC | 1.00 | 0.58 | 1.00 | 1.00 | 1.00 | 1.00 |
| RJOH | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| RJOK | 1.00 | 0.58 | 1.00 | 1.00 | 1.00 | 0.65 |
| RJOM | 1.00 | 0.63 | 1.00 | 1.00 | 1.00 | 0.71 |
| RJSA | 1.00 | 0.63 | 1.00 | 1.00 | 1.00 | 1.00 |
| RJSF | 1.00 | 0.54 | 1.00 | 1.00 | 1.00 | 1.00 |
| RJSK | 1.00 | 0.63 | 0.68 | 1.00 | 1.00 | 0.71 |
| RJIG | | | | 1.00 | 1.00 | 1.00 |
| | | | | | | |
| KO31 RKSI | | | | | | |
| RKJB | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 | 0.97 |
| RKNY | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 | 0.90 |
| RKPC | 1.00 | 1.00 | 0.94 | 1.00 | 1.00 | 0.97 |
| RKPK | 1.00 | 0.94 | 0.97 | 1.00 | 1.00 | 1.00 |
| RKSI | 1.00 | 1.00 | 0.77 | 1.00 | 1.00 | 0.94 |
| RKSS | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.94 |
| RKTN | 1.00 | 0.92 | 0.97 | 1.00 | 0.99 | 0.97 |
| RKTU | 1.00 | 0.94 | 0.97 | 1.00 | 0.99 | 0.32 |
| RKTN | 1.00 | 0.92 | 0.81 | 1.00 | 0.99 | 0.97 |

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|-----------|------|------|------|------|------|------|--|
| KO31 RKSX | | | | | | | |
| RKNY | 1.00 | 0.92 | 0.94 | 1.00 | 0.98 | 0.94 | |
| RKPC | 1.00 | 0.87 | 0.84 | 1.00 | 0.98 | 0.90 | |
| RKPK | 1.00 | 0.74 | 0.81 | 1.00 | 0.73 | 0.90 | |
| RKSI | 1.00 | 0.91 | 0.84 | 1.00 | 0.98 | 0.90 | |
| RKSS | 1.00 | 0.91 | 0.87 | 1.00 | 0.98 | 0.90 | |
| RKTN | 1.00 | 0.59 | 0.74 | | | | |
| RKTU | 1.00 | 0.70 | 0.81 | 1.00 | 0.73 | 0.90 | |
| | | | | | | | |
| ME31 OEJD | | | | | | | |
| OJAI | | | | 1.00 | 0.93 | 1.00 | |
| OJAM | | | | 1.00 | 0.94 | 1.00 | |
| OJAQ | | | | 1.00 | 0.93 | 1.00 | |
| OLBA | | | | 1.00 | 0.91 | 0.77 | |
| OSAP | | | | 1.00 | 0.90 | 0.68 | |
| OSDI | | | | 1.00 | 0.90 | 0.68 | |
| OSLK | | | | 1.00 | 0.90 | 0.65 | |
| | | | | | | | |
| ME31 OLBA | | | | | | | |
| OJAI | 1.00 | 0.93 | 0.87 | 1.00 | 0.96 | | |
| OJAM | 1.00 | 0.97 | 0.97 | 1.00 | 0.97 | | |
| OJAQ | 1.00 | 0.68 | 0.84 | 1.00 | 0.96 | | |
| OLBA | 1.00 | 1.00 | 0.90 | 1.00 | 0.96 | 0.94 | |
| OSAP | 1.00 | 0.99 | 0.87 | 1.00 | 0.93 | 0.58 | |
| OSDI | 1.00 | 0.99 | 0.90 | 1.00 | 0.94 | 0.58 | |
| OSLK | 1.00 | 0.92 | 0.94 | 1.00 | 0.94 | 0.58 | |
| | | | | | | | |
| MS31 WMKK | | | | | | | |
| WBG | 1.00 | 0.99 | 1.00 | | | | |
| WBKK | 1.00 | 0.96 | 0.61 | | | | |
| WBSB | 1.00 | 0.89 | 0.81 | | | | |
| WMKK | 1.00 | 1.00 | 0.81 | | | | |
| WMKP | 1.00 | 0.99 | 0.81 | | | | |
| WSSL | 1.00 | 0.79 | 0.87 | | | | |
| WSSS | 1.00 | 1.00 | 1.00 | | | | |
| | | | | | | | |
| MS38 WMKK | | | | | | | |
| WBGB | 1.00 | 0.98 | 1.00 | | | | |
| WBGR | 1.00 | 0.97 | 0.97 | | | | |
| WBS | 1.00 | 0.95 | 0.94 | | | | |
| WBKL | 1.00 | 0.97 | 1.00 | | | | |
| WBKS | 1.00 | 0.97 | 1.00 | | | | |
| WBKW | 1.00 | 0.97 | 1.00 | | | | |
| WMKD | 1.00 | 0.97 | 1.00 | | | | |
| WMKL | 1.00 | 0.98 | 0.90 | | | | |
| WMKM | 1.00 | 0.97 | 1.00 | | | | |

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|-----------|------|------|------|------|------|------|--|
| NG31 YBBN | | | | | | | |
| AGGH | 1.00 | 0.65 | 0.65 | 1.00 | 0.90 | 0.71 | |
| ANYN | | | | 1.00 | 0.85 | 0.84 | |
| AYGN | 0.52 | 0.03 | 1.00 | | | | |
| AYMH | 0.87 | 0.14 | 1.00 | | | | |
| AYMO | 0.81 | 0.11 | 1.00 | | | | |
| AYNZ | 0.87 | 0.25 | 0.61 | | | | |
| AYPY | 1.00 | 0.90 | 1.00 | 1.00 | 0.79 | 0.74 | |
| AYVN | 0.58 | 0.05 | 1.00 | | | | |
| AYWK | 0.77 | 0.12 | 1.00 | | | | |
| NZ31 NZKL | | | | | | | |
| NZAA | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| NZCH | 1.00 | 0.99 | 0.97 | 1.00 | 1.00 | 1.00 | |
| NZWN | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| PK31 OPKC | | | | | | | |
| OPGD | | | | 1.00 | 1.07 | 0.90 | |
| OPKC | 1.00 | 0.91 | 0.94 | 1.00 | 1.00 | 0.97 | |
| OPLA | 1.00 | 0.94 | 0.81 | 1.00 | 0.95 | 0.74 | |
| OPNH | 1.00 | 0.81 | 0.87 | 1.00 | 1.09 | 0.94 | |
| OPPS | 1.00 | 0.93 | 0.81 | 1.00 | 1.98 | 0.97 | |
| OPRN | 1.00 | 0.90 | 0.87 | 1.00 | 0.85 | 0.94 | |
| OPSK | 1.00 | 0.78 | 0.94 | 1.00 | 1.09 | 0.90 | |
| OPPS | 0.10 | 0.00 | 1.00 | 1.00 | 1.02 | 0.97 | |
| PS31 NFFN | | | | | | | |
| NCRG | 1.00 | 0.91 | 1.00 | 1.00 | 0.94 | 1.00 | |
| NFFN | 0.68 | 0.14 | 1.00 | 1.00 | 0.92 | 1.00 | |
| NFNA | 0.87 | 0.29 | 1.00 | 0.92 | 0.95 | 1.00 | |
| NFTF | | | | 0.94 | 0.94 | 1.00 | |
| NGFU | 1.00 | 0.84 | 1.00 | | | | |
| NGTA | | | | 0.97 | 0.97 | 1.00 | |
| NIUE | 0.03 | 0.00 | 1.00 | 1.00 | 0.76 | 0.77 | |
| NSFA | | | | 0.92 | 0.92 | 1.00 | |
| NTAA | 1.00 | 0.97 | 0.77 | 1.00 | 0.98 | 0.97 | |
| NVSS | | | | 0.75 | 0.75 | 1.00 | |
| NVVV | | | | 0.73 | 0.73 | 1.00 | |
| NWWW | 1.00 | 0.93 | 0.84 | | | | |
| PLCH | 1.97 | 0.14 | 0.90 | 1.00 | 0.94 | 0.97 | |
| PS32 NFFN | | | | | | | |
| NFTF | 1.00 | 0.85 | 0.97 | | | | |
| NFTL | 1.00 | 0.51 | 1.00 | | | | |
| NFTV | 1.00 | 0.68 | 1.00 | | | | |
| NLWW | 0.03 | 0.00 | 0.00 | | | | |

| | | | | | | |
|-----------|------|------|------|------|------|------|
| NVSS | 0.13 | 0.01 | 1.00 | | | |
| NVVV | 0.29 | 0.01 | 1.00 | | | |
| | | | | | | |
| SD31 OEJD | | | | | | |
| OEDF | 1.00 | 1.00 | 0.94 | 1.00 | 2.12 | 1.00 |
| OEDR | 1.00 | 1.00 | 0.68 | 1.00 | 2.12 | 1.00 |
| OEJN | 1.00 | 1.00 | 0.55 | 1.00 | 0.99 | 0.65 |
| OEMA | 1.00 | 1.00 | 0.68 | 1.00 | 0.99 | 0.65 |
| OERK | 1.00 | 1.00 | 0.74 | 1.00 | 1.00 | 0.68 |
| OYSN | 1.00 | 1.00 | 0.90 | 1.00 | 0.96 | 0.74 |
| | | | | | | |
| SR31 WSSS | | | | | | |
| WAAA | | | | 1.00 | 1.00 | 0.87 |
| WABB | | | | 1.00 | 0.69 | 0.87 |
| WADD | | | | 1.00 | 0.97 | 0.94 |
| WARR | | | | 1.00 | 0.94 | 0.84 |
| WIHH | | | | 1.00 | 0.73 | 1.00 |
| WIII | | | | 1.00 | 1.00 | 0.84 |
| WIMM | | | | 1.00 | 0.95 | 0.81 |
| WSAP | | | | 1.00 | 1.00 | 1.00 |
| WSSL | | | | 1.00 | 1.00 | 1.00 |
| WSSS | | | | 1.00 | 1.00 | 1.00 |
| | | | | | | |
| SR32 WSSS | | | | | | |
| WMKJ | | | | 1.00 | 1.00 | 1.00 |
| WMKK | | | | 1.00 | 1.00 | 1.00 |
| WMKL | | | | 1.00 | 1.00 | 1.00 |
| WMKM | | | | 1.00 | 1.00 | 1.00 |
| WMKP | | | | 1.00 | 1.00 | 1.00 |
| | | | | | | |
| TH31 VTBB | | | | | | |
| VTCH | 1.00 | 0.39 | 0.71 | 1.00 | 0.50 | 1.00 |
| VTCL | 1.00 | 0.08 | 0.65 | 1.00 | 0.49 | 0.97 |
| VTGN | 1.00 | 0.42 | 0.90 | 1.00 | 0.49 | 0.97 |
| VTCP | 1.00 | 0.26 | 0.48 | 1.00 | 0.50 | 0.97 |
| VTCT | 1.00 | 0.71 | 0.87 | | | |
| VTCP | | | | 1.00 | 0.50 | 0.97 |
| VTPB | | | | 1.00 | 0.50 | 0.97 |
| VTPM | | | | 1.00 | 0.50 | 0.97 |
| VTPH | 1.00 | 0.49 | 0.94 | | | |
| VTPO | 1.00 | 0.51 | 0.74 | 1.00 | 0.49 | 0.94 |
| VTPP | 1.00 | 0.63 | 0.71 | 1.00 | 0.50 | 0.97 |
| VTPT | | | | 1.00 | 0.50 | 0.97 |
| | | | | | | |
| TH32 VTBB | | 0.51 | | | | |
| VTSB | 1.00 | 0.73 | 0.97 | 1.00 | 0.50 | 0.71 |
| VTSC | 1.00 | 0.22 | 0.81 | 1.00 | 0.51 | 0.71 |

| | | | | | | |
|-----------|------|------|------|------|------|------|
| VTSE | | | | 1.00 | 0.44 | 0.84 |
| VTSF | 1.00 | 0.56 | 0.29 | 1.00 | 0.50 | 0.68 |
| VTSH | | | | 1.00 | 0.48 | 0.65 |
| VTSK | | | | 1.00 | 0.50 | 0.71 |
| VTSG | 1.00 | 0.55 | 0.81 | | | |
| VTSH | 1.00 | 0.45 | 0.94 | 1.00 | 0.48 | 0.65 |
| VTSM | 1.00 | 0.73 | 1.00 | 1.00 | 0.50 | 0.71 |
| VTSR | | | | 1.00 | 0.50 | 0.84 |
| VTST | 1.00 | 0.32 | 0.90 | 1.00 | 0.50 | 0.84 |
| | | | | | | |
| TH33 VTBB | | | | | | |
| VTBO | 1.00 | 0.49 | 0.74 | | | |
| VTUD | 1.00 | 0.64 | 1.00 | 1.00 | 0.77 | 0.74 |
| VTUI | 1.00 | 0.15 | 0.61 | 0.97 | 0.40 | 0.58 |
| VTUJ | | | | 1.00 | 0.50 | 0.74 |
| VTUK | 1.00 | 0.70 | 0.90 | 1.00 | 0.79 | 0.74 |
| VTUL | 1.00 | 0.21 | 0.77 | 1.00 | 0.42 | 0.58 |
| VTUO | 0.58 | 0.07 | 1.00 | 1.00 | 0.50 | 0.74 |
| VTUQ | | | | 1.00 | 0.50 | 0.74 |
| VTUU | 1.00 | 0.98 | 0.74 | | | |
| VTUV | 1.00 | 0.14 | 0.97 | 1.00 | 0.50 | 0.74 |
| VTUW | | | | 1.00 | 0.42 | 1.00 |